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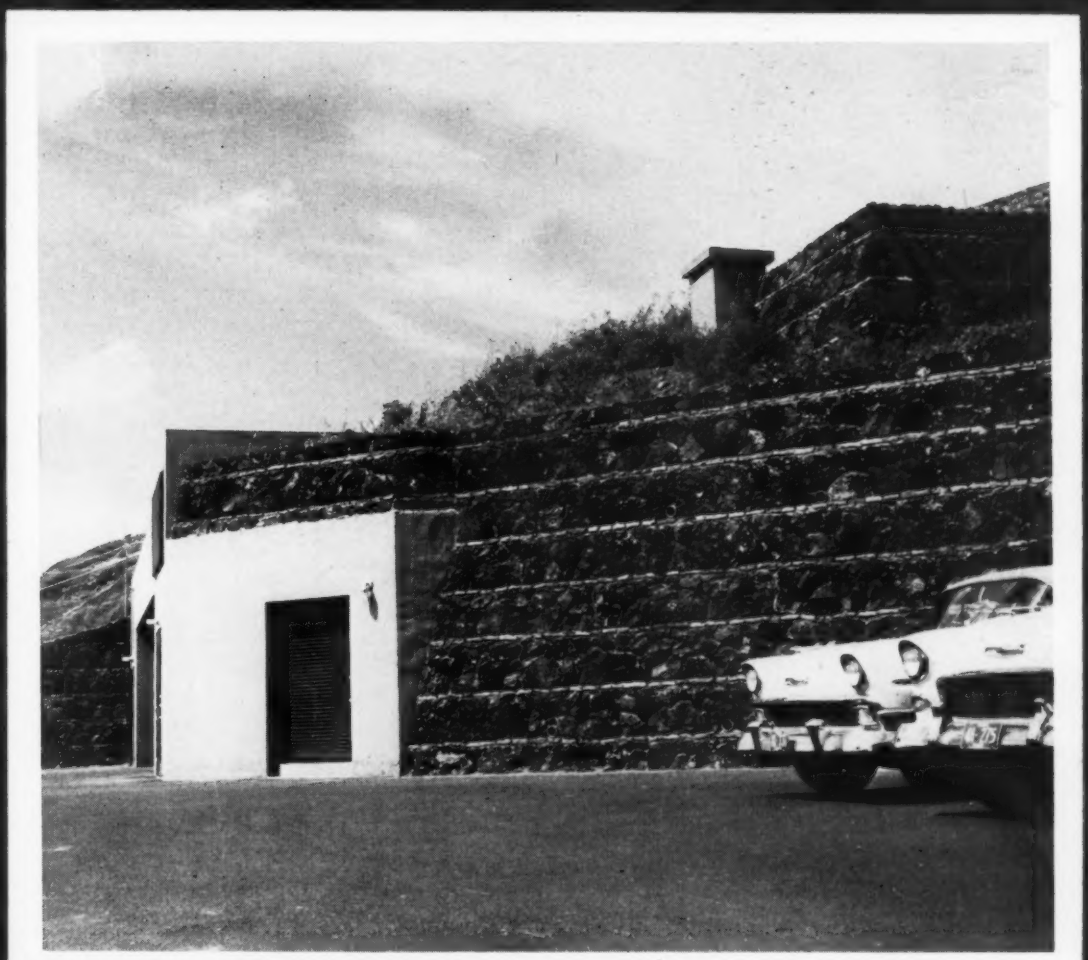
NOVEMBER 7, 1957
VOL. 153—NO. 19

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY



TRANSPACIFIC CABLE

Western end of Transpacific cable, joint Hawaiian Telephone Co.—AT&T project, has terminal equipment in this building nestled halfway up the side of Koko Head Crater. Lava rock wall helps blend building into hillside. For cable story, see page 34.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

XUM

Smartly styled No. 120 switchboard adds luster to any reception room . . . offers many operating features.

Get all the operating advantages...

PLUS *the smartest styling in the industry!*

Your commercial subscribers will welcome the efficient internal and external communications you can provide with the Stromberg-Carlson No. 120 cord-type and No. 121 cordless switchboards.

Encased in the only modern-style cabinets in the industry, these switchboards give your subscribers a *bonus of beauty* that compliments any business or professional office.

The "120" offers such operating features as:

- Trunk re-ring on jack-ended boards (trunk lines immediately freed even when operator delays pulling down cord)
- Conference calls
- Key for listening and dialing
- Keys for ringing on both cords
- Key for through dialing and night connections
- Instantaneous busy on plug-ended trunks
- Easy maintenance—to service, simply lift out rear panel and swing out relay gate

Space Saver

The Stromberg-Carlson No. 121 cordless switchboard is ideal for offices where a secretary or clerk also acts as switchboard operator . . . or where space is too limited for a cabinet PBX.

The "121" has a capacity of 5 trunks, 16 extensions and 5 connecting circuits. Its instantaneous busy feature prevents interference with toll calls. Common talking circuits on lines, individual line relays (to prevent line leakage) and indicating lamps make operation easy.

Servicing is easy, too. Simply let down the hinged key panel and lift off the rest of the cabinet as a complete unit.

These switchboards are just what you need to "trade up" your commercial subscribers to PBX's. For complete technical data and sales literature, call or write the Stromberg-Carlson representative in your area.

XUM

No. 121 cordless switchboard fits handsomely where space is at a premium . . . lets secretary or clerk double as operator.

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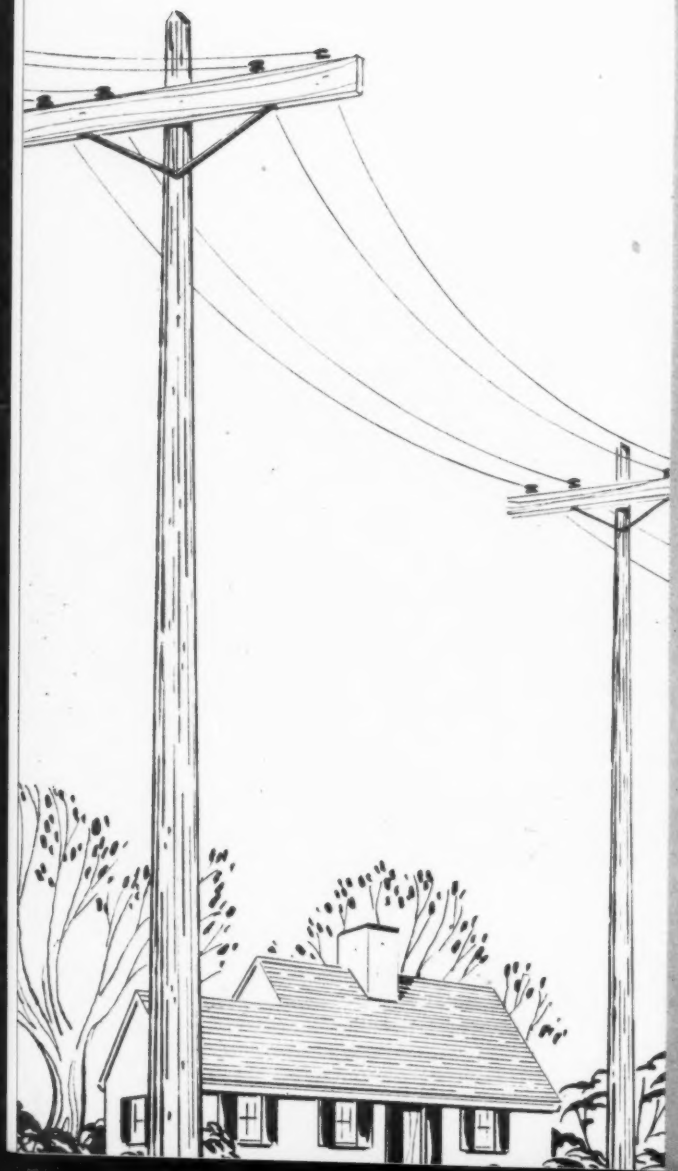
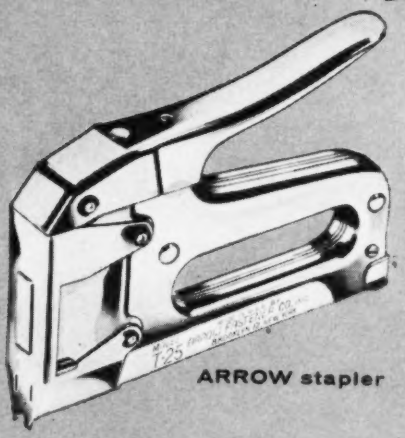
Sales Offices: Atlanta 6, Chicago 6, Kansas City 8, Rochester 3, San Francisco

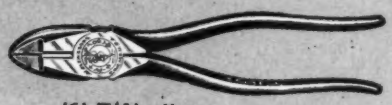


THOR heavy-duty drill

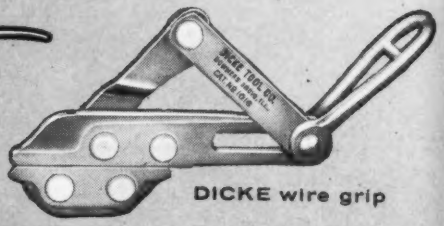


ARROW stapler

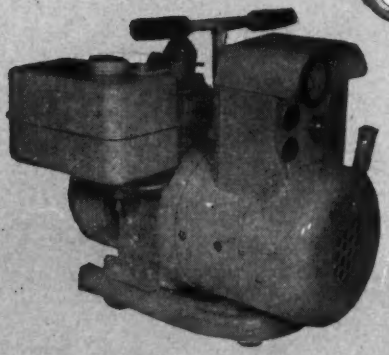
BUHRKE non-metallic bucket



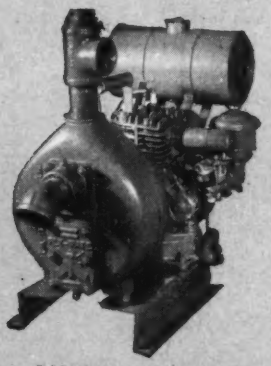
KLEIN pliers



DICKE wire grip



US MOTORS generator set



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ESTWING lineman's hammer

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GENERAL SYSTEM

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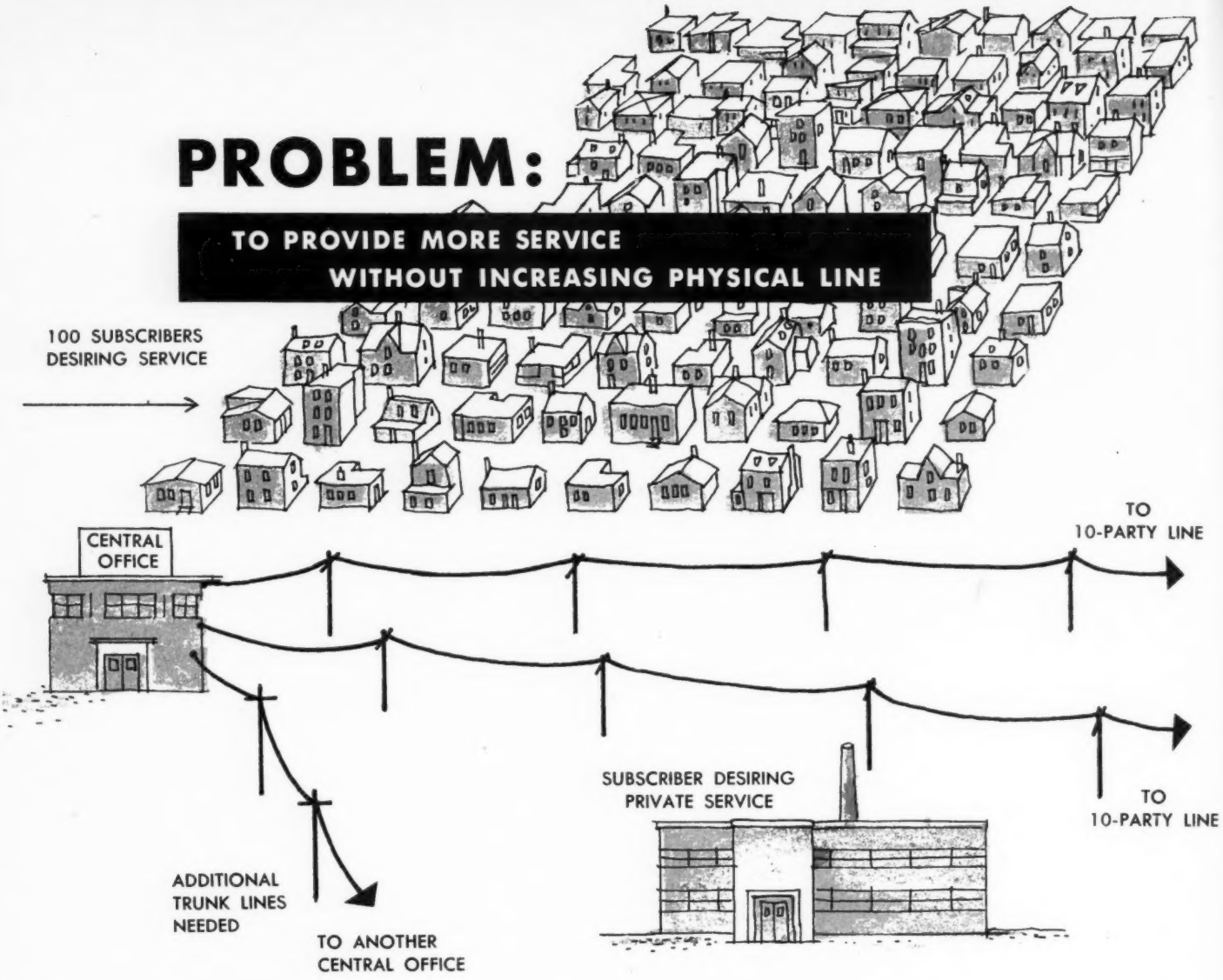
PROBLEM:

TO PROVIDE MORE SERVICE WITHOUT INCREASING PHYSICAL LINE



In many cases, there is no need for costly increases of your physical lines. Now you can increase subscriber satisfaction and add new revenue to your existing facilities with this remarkable Frequency Modulation telephone carrier. Its superior quality has been proved by five years of field testing and it is now being extensively used by both large and small telephone operating companies.

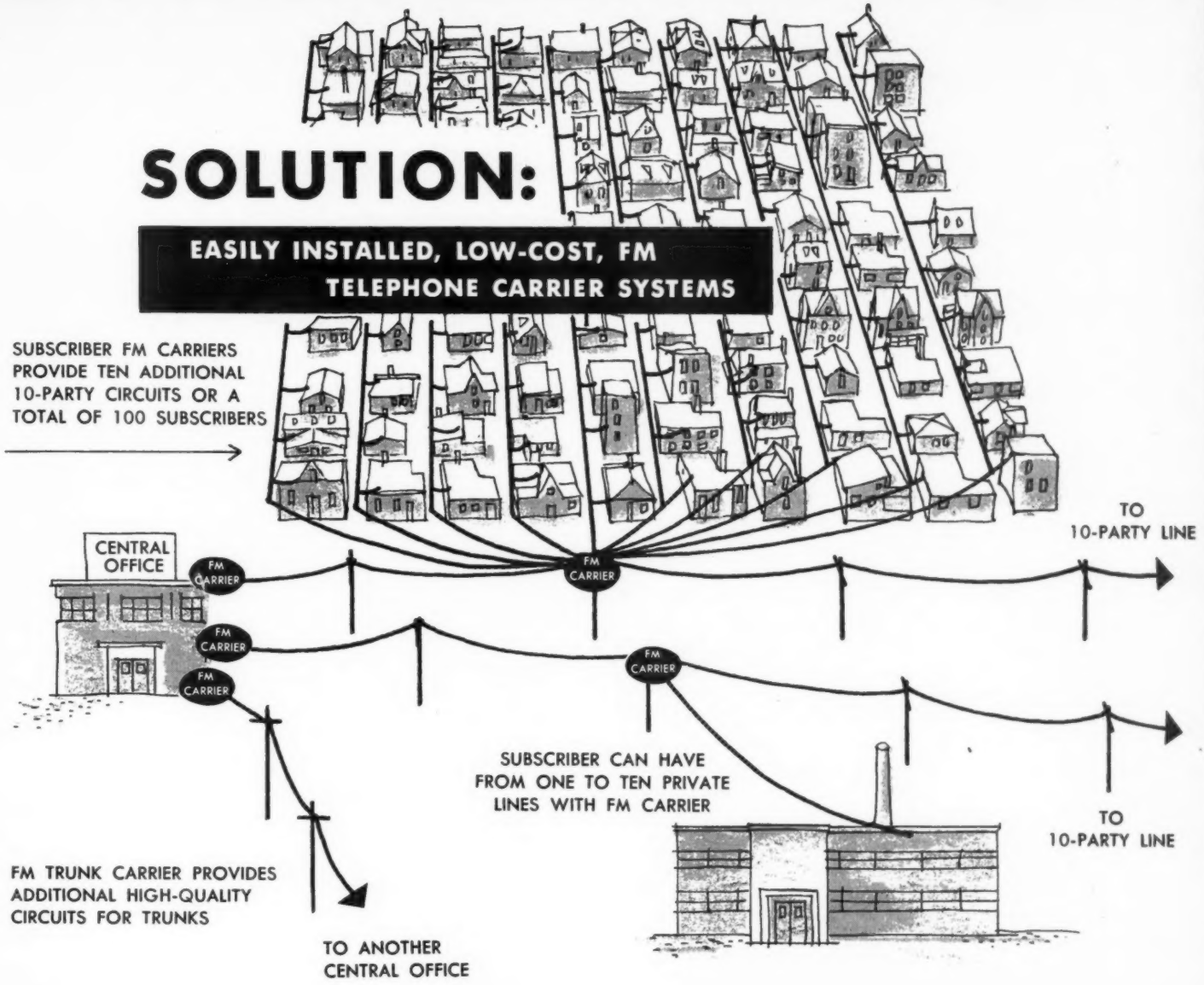
FM CARRIER FACTS

1. **More channels . . . 10 channels per circuit . . . 20 channels per pole lead . . . will not interfere with most standard AM carriers on the same circuit.**
2. **Makes installation easy, as little as 8 man-hours.**
3. **Easy servicing . . . interchangeable parts, plug-in units for simple maintenance.**
4. **Accommodates all types of signaling, including 10-party full selective divided or bridged ringing, code ringing, superimposed ringing . . . E & M dial and ringdown signaling, too!**
5. **Gives you trunk service, too . . . ideally suited for additional economical toll or EAS trunks.**

XUM

SOLUTION:

EASILY INSTALLED, LOW-COST, FM TELEPHONE CARRIER SYSTEMS


SUBSCRIBER FM CARRIERS PROVIDE TEN ADDITIONAL 10-PARTY CIRCUITS OR A TOTAL OF 100 SUBSCRIBERS
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TO 10-PARTY LINE
TO 10-PARTY LINE
SUBSCRIBER CAN HAVE FROM ONE TO TEN PRIVATE LINES WITH FM CARRIER
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FLASHES AND PLUGS

PRICE OF INGRATITUDE. A customer who obtained permission to use a telephone in a Fort William, Ontario, cafe called Toronto and talked for 23 minutes. For not paying the $11.35 bill he was arrested and fined $100.

•

RAMBLING WRECK. "What's my trouble, Doc?" asked the harried service representative.

"I'm not sure exactly what's wrong with you," replied the doctor, "but if you were a building you'd be condemned."

•

IRONY OF IT ALL. There's a town in Texas to which you can mail a letter, but can't call by telephone, says the *Blue Bell*, employe magazine of Bell Telephone Co. of Canada. There are some grade school children who have never talked over a telephone, and some old timers too, who have never had one installed.

Seven-odd years ago, an ice storm tore down the town's telephone lines, and nobody has bothered to restore the service.

According to one resident, a telephone would certainly help to while away some time now that she has more time to "listen in."

Another resident says "If it wasn't for the salesmen that visit us from time to time, we'd have to go to Ivanhoe or Monkstown every time we wanted to order something."

To point up the story, oddly enough, the name of this no-telephone town, is: Telephone!

•

TIME CAPSULE. A Boston newspaper, many years ago, carried the following news item, reports the *Northwestern Bell News:*

"A man about 46 years of age, giving the name of Joshua Coppersmith, has been arrested in New York for attempting to extort funds from ignorant and superstitious people by exhibiting a device which he says will convey the human voice any distance over metallic wires so that he will be heard by the listener at the other end.

"He calls the instrument a 'telephone' which is obviously intended to imitate the word 'telegraph' and win the confidence of those who know the success of the latter instrument without understanding the principles on which it is based.

"Well-informed people know that it is impossible to transmit the human voice over wires as may be done with dots and dashes and signals of the Morse Code, and that, were it possible to do so, the thing would be of no practical value.

"The authorities who apprehended this criminal are to be congratulated, and it is hoped that his punishment will be prompt and fitting, that it may serve as an example to other conscienceless schemers who enrich themselves at the expense of their fellow creatures."

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Dept. of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

November 9, 1957

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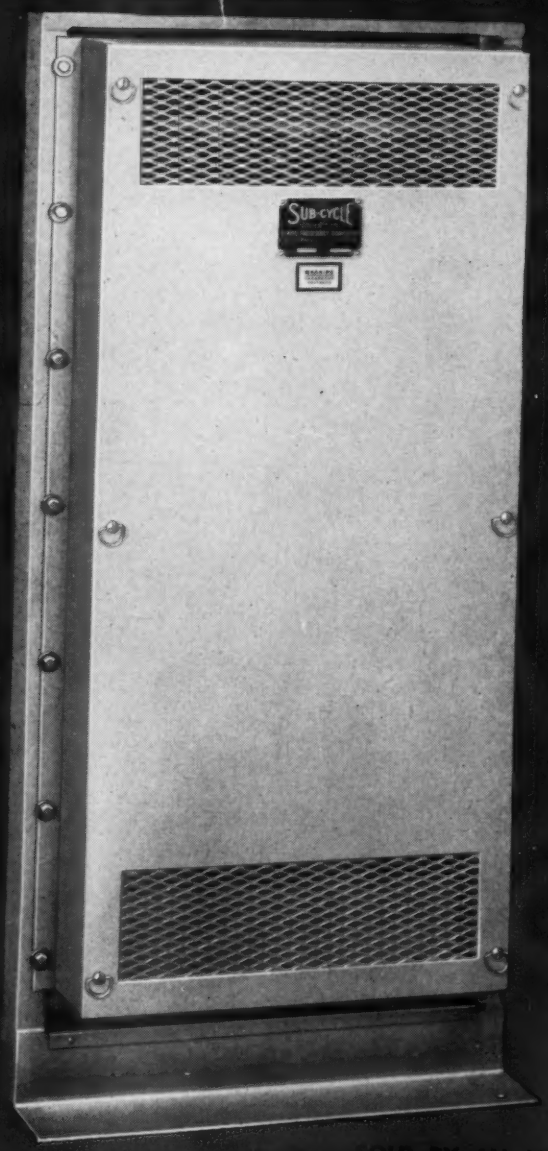
FOR SYNCHROMONIC RINGING!



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OPERATION!
YEAR AFTER YEAR

Making use of a unique conversion principle combined with basic Sub-Cycle circuits used repeatedly in other Lorain equipment, the S-5 Sub-Cycle has power to spare. Depend upon it to deliver full-rated capacity even under the most unfavorable conditions. It has excellent voltage regulation and will always deliver the exact synchronomic ringing frequencies. The S-5 has no moving parts to wear, it provides the permanent, maintenance-free, economical operation that is characteristic of all Sub-Cycles.

The Model S-5 can be equipped to supply either 15 cycles or 20 cycles as the 16th frequency. If only four frequencies are required, the converter is designated as a Model S-4. A minimum of floor space, only 24 3/8" by 15", is required.

WRITE FOR BULLETIN 169

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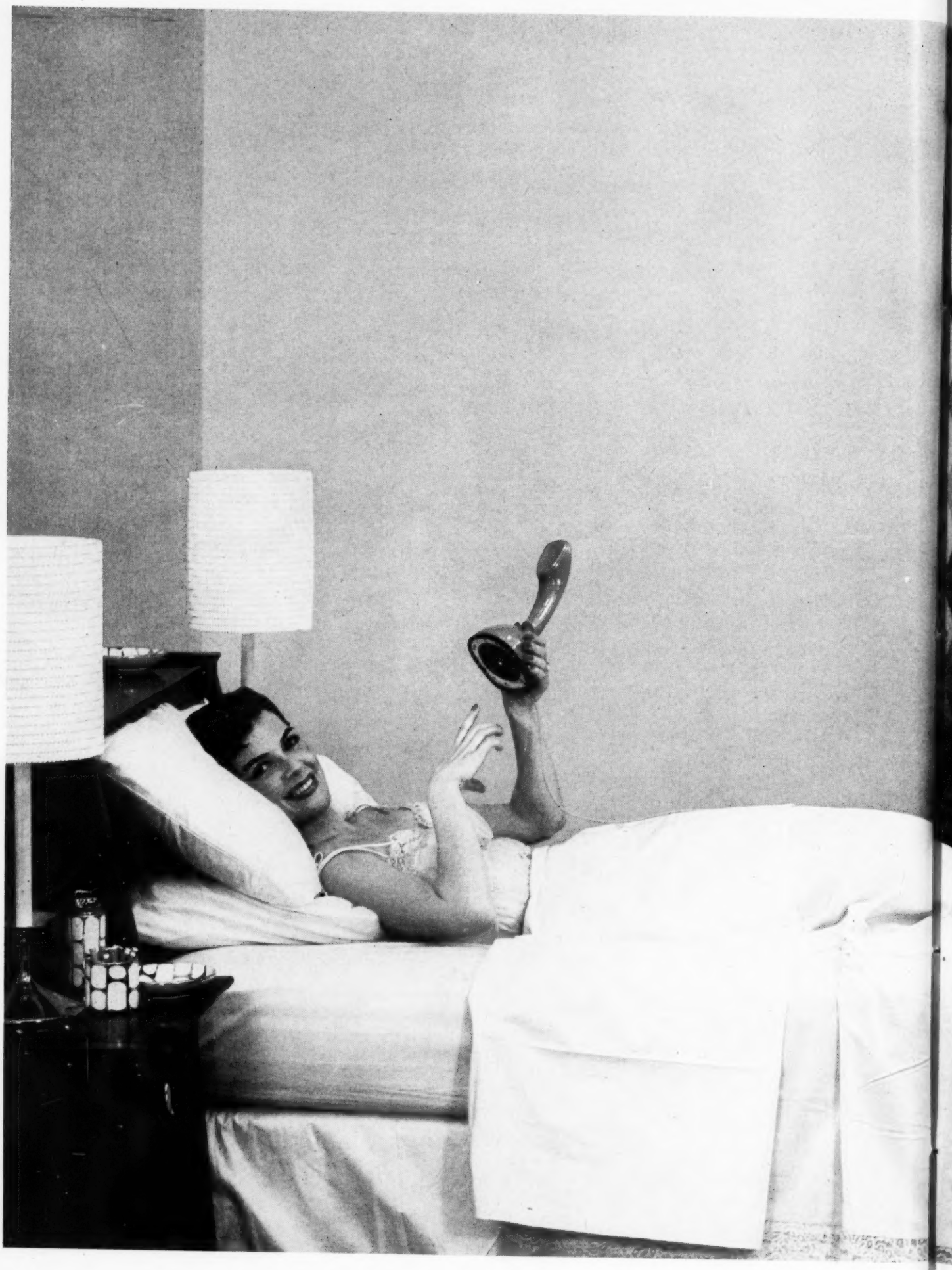

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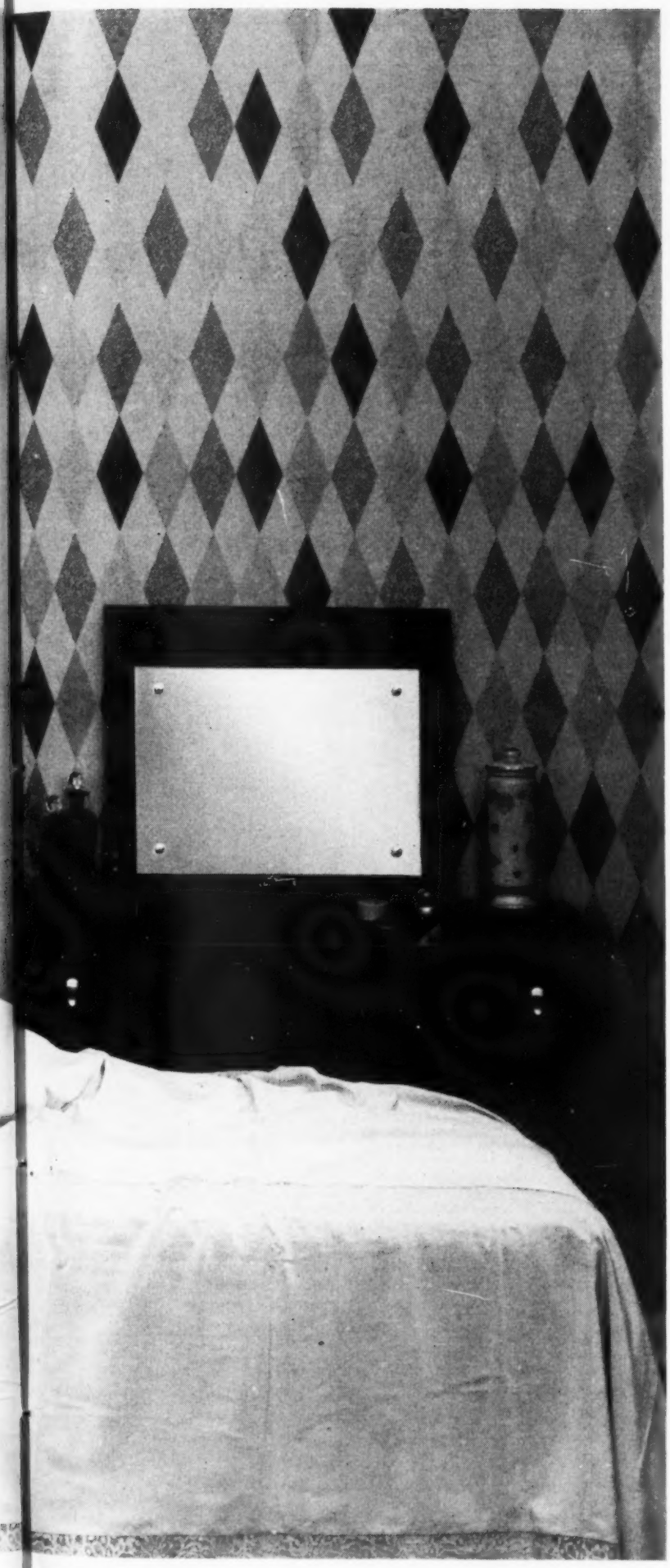

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Extension installations spell increased revenue —the Ericofon sells extension installations because it is so perfectly functional, especially as a bedside phone! There's no twisting, turning, stretching or reaching with the Ericofon!

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Quality that assures happy subscribers!

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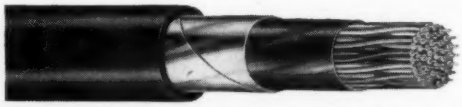
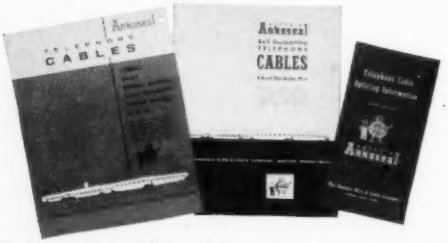
Toll Quadded Cables Assure Best Performance From Your Modern Exchanges

Throughout the country consistent performance reports prove that Ansonia Ankoseal Toll Quadded Cable gives subscribers the finest service available.

You can stop worrying about "Noisy Cable", "Excessive Cross Talk" and "Excessive Circuit Unbalance" when you install Ankoseal Toll Quadded Cable.



Available In 19 Gauge From 7 to 32 Quads



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1. Telephone Cables
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Built Up To Quality . . .

Not Down To Price!

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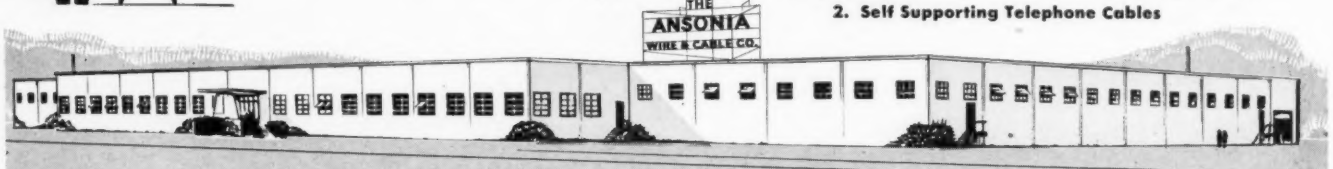

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The Oldest Name In Plastic Telephone Cables In The Most Modern Plant Devoted Entirely To Producing Cables.

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Graybar's long experience in serving the every day needs of telephone companies is especially valuable when lines go down.

A nation-wide network of Graybar offices and warehouses provide ready accessibility to stocks of essential telephone supplies. You can depend on the fastest possible deliveries of emergency replacement items — wherever and whenever they are needed.

Experienced Graybar personnel have developed the know-how needed to initiate immediate action and efficient follow-through from working closely with telephone companies daily and through emergencies of all kinds.

Moreover, Graybar is totally owned by its operating and retired personnel. That's why you're sure to get, especially on emergencies, *personal* service from people who have a *personal* interest in giving you the assistance you need, when you need it.

610-2312

Graybar Electric Company, Inc.
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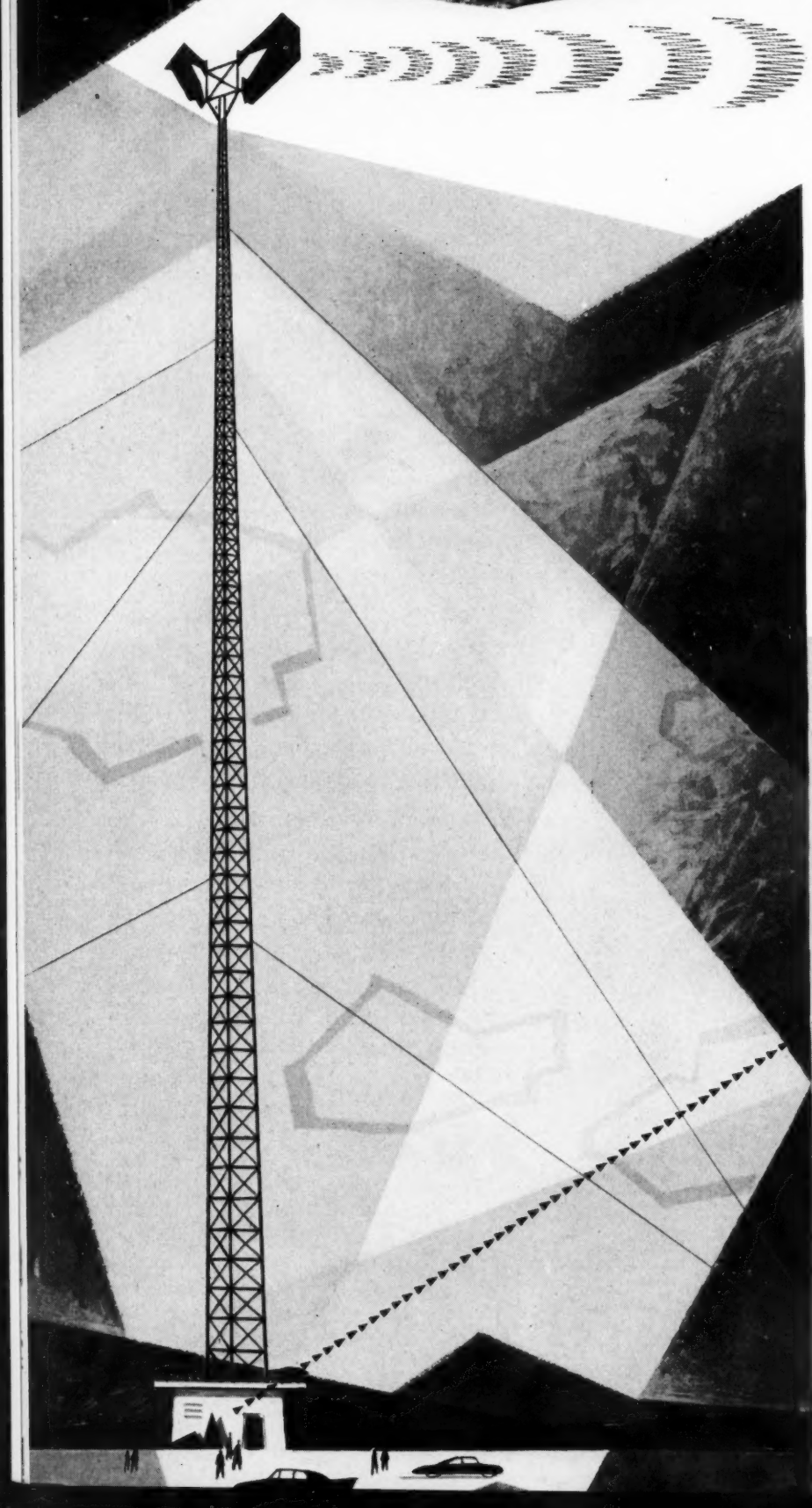
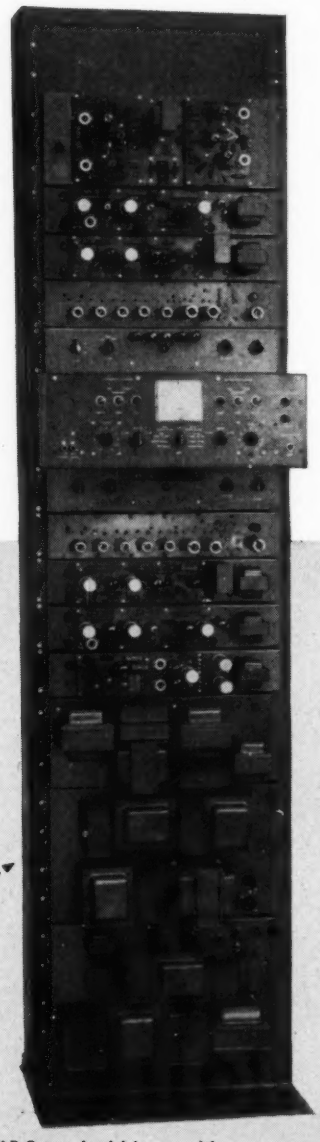
Call Graybar first for...

IN OVER 130 PRINCIPAL CITIES

PHILCO *Announces*

NEW CLR-9 HIGH





The CLR-9 terminal (shown with covers removed) consists of wave-guide and preamplifier, IF assembly, baseband drop, modulator, reflector control, servo, master control and tubeless power supplies.

HCHANNEL DENSITY MICROWAVE

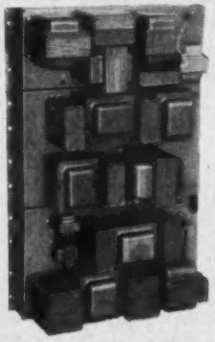
WITH 240 VOICE CHANNEL CAPACITY

Here is high channel density and outstanding reliability of operation—plus individual Automatic Standby for transmitter and receiver. The new Philco CLR-9 Microwave System is designed for quick installation in standard relay racks . . . and engineered with built-in metering and accessibility to all critical test points for easy field maintenance.

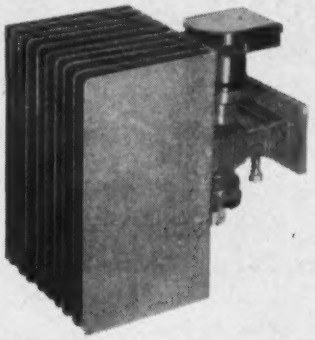
Performance reliability is sharply increased by the use of tubeless power supplies—new semiconductor rectifiers replace tubes. The use of printed wiring panels increases circuit stability—printed circuitry is keyed for easy identification—may be quickly replaced by maintenance personnel (permits efficient, centralized depot maintenance). Klystrons in the new CLR-9 are cooled by convection . . . the use of more compact heat sinks eliminates the need for bulky blowers.

The CLR-9's 240 voice channel capability is maintained even in repeater operation, to provide full duplex transmission and reception in both directions. Integrally mounted standby equipment is included.

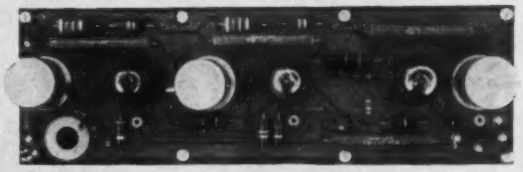
- **A new dimension in communications reliability . . . for continuous unattended operation.**
- **Baseband capacity for 240 channels or more.**
- **Peak performance at moderate cost—power supply capacity sufficient to accommodate both primary and standby equipment.**
- **Duplex transmission of wideband composite multiplex voice signals.**
- **Incorporates new low noise conversion and preamplifier circuitry.**
- **Integrated, fast, automatic standby selection included in one rack with individual back-up for transmitter and receiver functions.**



Heavy-duty, tubeless power supplies increase reliability by employing semiconductor rectifiers—assures minimum maintenance and very moderate operating cost.



Heat sinks cool the Klystrons by convection—compact CLR-9 needs no bulky blower system.



Rugged printed wiring panels increase circuit stability—easy identification simplifies maintenance.

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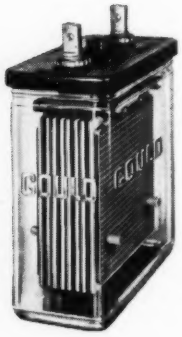
You Get "Hidden Horsepower" from gould BATTERIES



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Gould engineers train your personnel . . . set up preventive maintenance programs . . . establish efficient battery charging methods . . . and otherwise help you make use of the "Hidden Horsepower" in every Gould Battery.

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Always Use Gould-National Automobile & Truck Batteries

More Power to you from Gould

Telephone Excise Taxes

Discriminatory and Unjust

By REP. WILBUR D. MILLS*

"There is no justification for the government to single out telephone service, an absolute necessity in our present-day business and personal lives, from all other vital utility services for excise taxing purposes. The amount of tax revenue yielded does not sanctify, nor lend propriety to, imposition of this discriminatory tax upon telephone users."

THE receipts (of the federal government) from communications taxes are relatively substantial. For the fiscal year ending June 30, 1956, the total receipts from (all) Internal Revenue taxes exceeded 75 billion dollars. Of this figure, over 10 billion dollars were realized from all of the various excise taxes. The services and facilities taxes (communications and transportation, admission, cabaret dues, safe deposit boxes) accounted for over 1,457 million dollars. Of this amount, the five types of communications (excise) taxes totaled over 557 million dollars, as follows:

Source of Tax	*Amount*
Long distance telephone and telegraph, radio and cable messages...	$222 million
Local telephone service..	316 million
Leased wire service and wire and equipment service	19 million
Total	$557 million

The relation of these revenues to each other is illustrated by the following table:

	Relation to total Internal Revenue Taxes	Relation to total excise taxes	Relation to total facilities & services taxes	Relation to total Communications Taxes
Total Internal Revenue Taxes	100 %			
Total Excise Taxes.....	13.33%	100 %		
Total Services and Facilities Taxes	1.94%	14.52%	100 %	
Total communications Taxes	.74%	5.55%	38.23%	100 %
Long distance telephone and telegraph	.29%	2.21%	15.24%	39.86%
Local telephone	.42%	3.15%	21.69%	56.73%
Leased wire and wire and equipment	.03%	.19%	1.30%	3.41%

A few other interesting revenue comparisons may be made. The total fiscal 1956 receipts from the transportation (excise) taxes of 701 million dollars was greater than the total communications taxes, but the latter exceeded the tax on the transportation of property only. The total (excise tax) receipts on local telephone service is almost as great as the total receipts from all of the retailers' excise taxes on furs, jewelry, luggage and toilet goods.

As demonstrated by the above revenue figures and their inter-relationship, the taxes imposed on local and long distance telephone service are responsible for the bulk of the yield from the communications taxes. An analysis of the sources of the telephone taxes—the subscribers—reveals that these taxes directly affect the great majority of American families.

Reliable surveys show that there are approximately 59 million telephones in use in this country today and that there are over 200 million daily conversations. It is estimated that 75 per cent of American households have telephones.

The telephone taxes are collected and paid to the government by two principal (telephone) business groups. One of these, often referred to as the Bell System, is comprised of 22 companies that are subsidiaries or affiliates of the American Telephone & Telegraph Co. The other consists of more than 4,300 Independent telephone companies, not part of the Bell System. The Independent companies have approximately 9 million telephones to operate in almost 11,000 cities, towns and villages, principally the smaller ones.

Historical Facts and Data

All of the types of services subjected to tax by present law have been taxed since Oct. 1, 1941. Between that date and June 21, 1932, all of the present taxable services were taxed, with the exception of local telephone service.

For several years before 1932, no communications taxes were imposed. The first imposition became effective Nov. 1, 1917 at which time a tax of 5 cents was imposed on each charge for

*Mr. Mills, Congressman of Arkansas, presented this address at the recent convention of the Arkansas Telephone Association.

telegraph, telephone or radio message of 15 cents or more. This rate continued until Apr. 1, 1919, at which time the 5-cent tax was confined to charges of from 15 cents to 50 cents, and a tax of 10 cents was imposed on charges over 50 cents.

In addition, at that time a tax of 10 per cent was imposed on leased wire service. These taxes were repealed on July 1, 1924.

The rates in effect from June 21, 1932 through Sept. 30, 1941 were as follows:

Local telephone Service	No tax
Toll or Long Distance Telephone Messages:	
$ .50-$ .99	10 cents per message
$1.00-$1.99	15 cents per message
$2.00 or more..	20 cents per message
Telegraph service (Domestic and International	5 per cent
Cable and radio Messages (Domestic and International)	10 cents per message
Leased Wires ...	5 per cent
Wire and Equipment Service	5 per cent

Since Oct. 1, 1941, the tax rates have fluctuated. The following table gives a summary of the different tax rates for the various services for the periods during which they were in effect.

Rates in Effect Nov. 1, 1941 to Present Time

	10/1/41 to 10/31/42	11/1/42 to 3/31/44	4/1/44 to 10/31/51	11/1/51 to 3/31/54	4/1/54 to Present
Local telephone	6%	10%	15%	15%	10%
Toll or Long Distance telephone	5c for each 50c or fraction	20%	25%	25%	10%
Telegraph, cable and radio					
Domestic	10%	15%	25%	15%	10%
International	10%	10%	10%	10%	10%
Leased wire	10%	15%	25%	25%	10%
Wire and equipment ..	5%	5%	8%	8%	8%

Allowing for the fluctuations in rates, the revenue yields of the taxes have steadily increased. This is illustrated by receipts over a period of several years.

Arguments Against Taxes

In recommending the repeal of the communications taxes then in effect, the report of the House Committee on Ways and Means, in connection with the Revenue Act of 1924, stated with respect to the telephone and telegraph tax ". . . . this tax was not only a burden on business but was a tax on a public utility so widely used as to be a necessity . . . ".

This view applies to existing taxes with even greater emphasis. All the forms of communications, currently subjected to tax, are an absolute necessity in our present day business and personal lives. This is emphatically true of telephone service, and especially of local telephone service.

Unquestionably, the telephone is an indispensable household facility, particularly in rural areas. It is as much a needed utility as electricity, gas or oil. Yet, there is no federal excise tax imposed on these services.

There is no justification for singling out telephone service from all of the vital utility services for taxing purposes. The amount of revenue yield does not sanctify, nor lend propriety to, the imposition of this highly discriminatory tax. The end does not justify the means.

At one time a tax was imposed on electrical energy. In the last full fiscal year of its existence (fiscal 1951) this tax produced over 93 million dollars. Despite this substantial tax loss, the tax was repealed by the Revenue Act of 1951, even though many other taxes were increased or imposed by the same revenue act because of the Korean hostilities.

In justifying the repeal of the electrical energy tax, the report of the House Committee on Ways and Means, with respect to the Revenue Act of 1951, stated, in part: ". . . . the tax is believed to be one of the most burdensome of the excise taxes with respect to the lower income groups, since amounts paid by consumers for electrical energy tend to vary relatively little with variations in income. Thus, the electrical energy tax paid by the higher income groups does not generally represent as large a percentage of their income as is true of the lower income groups. . . . "

While additional reasons were cited as warranting the repeal of the electrical energy tax, the foregoing quotation applies equally well to the telephone tax, particularly to that on local telephone service. With unlimited local telephone service available for a flat monthly fee, the lower-income user often bears the same tax burden as the high-income user. Such a result constitutes regressiveness in its most objectionable form. It is contrary to the basic taxing concept which should prevail—that of imposing taxes in proportion to the ability to pay.

With the total federal tax burden on the average individual being as high as it is now, because of all the direct and indirect taxes, every bit of tax saving is a help. Even a telephone tax saving of $10 a year would be noticed by, and helpful to, the mass of low income subscribers. The effect of such a repeal surely would be felt in the diversion of the tax saving to purchases of other goods and services, thereby aiding the nation's business.

It is impossible to determine with exactness the extent or form of savings that might be enjoyed by consumers through easing of the telephone tax burden on business. Even if the benefit would not be directly noticeable in the form of a reduction in the prices of consumer goods, it would financially strengthen business, which is vital to the preservation of our economic standards. Any savings that might be retained by business would be partially reduced by income tax paid on the profit increment, while the remainder would increase working capital. The cumulative effect would be to encourage business growth and expansion.

Repeal of the (telephone excise) tax should stimulate expansion of present telephone facilities and the construction of facilities where they do not now exist. The lowering of costs to prospective subscribers by the amount of the tax would be an added incentive to their requesting the service. This would be especially true for rural areas.

Congress already has taken steps to aid in the creating of an adequate telephone network by enacting the (REA) Rural Telephone Act. Under this law, millions of dollars are provided at low interest rates for the construction and rehabilitation of telephone systems in rural areas. It would be fitting and proper for Congress to provide further aid by repealing the (telephone excise) tax.

Another discriminatory aspect of the telephone taxes is the expensive burden they place on the telephone companies, who, in effect, must serve as the government's tax collectors without remuneration. The extent of this burden can be visualized by considering the time and personnel necessary to tabulate and audit the taxes collected from the millions of subscribers throughout the country. It is essential that meticulous care be exercised in properly ac-

counting for the taxes collected, since failure to do so could result in the assertion of the tax and additional charges against the telephone companies. Thus, they have nothing to gain and everything to lose.

If it is not possible to repeal all of the communications taxes, because of revenue considerations or for other reasons, at least the tax on local telephone service should be eliminated. There would be ample justification for such a selective action. The tax on local telephone service clearly originated as an emergency revenue measure first being imposed, as it was, in October, 1941. The other taxes, however, had been in effect in some form since 1932, as well as 10 years before that time.

Such an action also would extend to communications the same tax treatment comparable to that provided for the tax on the transportation of persons. While this latter tax, and the other taxes on transportation, are subject to some of the same objections and criticisms as are the communications taxes, at least an exemption is provided on payments for local transportation of persons. For example, fares of 60 cents or less are exempt, as are computation or season tickets for one month or less, or for trips of less than 30 miles. This exemption results in virtually no local or suburban transit fares being subjected to the tax. Telephone service should at least be afforded a similar treatment.

Exemption for local telephone service does exist to a limited degree, but it only accentuates the discrimination against the local telephone service not exempted. In the case of public coin telephones not on a guaranteed basis, such as are found in railroad stations, some stores and street booths, no tax is imposed on the individual local calls or on the total receipts. On the other hand, local calls placed on a home telephone are taxed, either on an actual tally or flat charge basis. This is manifestly unfair. Equality of treatment should be given both types by exemption—the home telephones as well as the public ones.

The utility commissions of many states have expressed opposition to the telephone (excise) tax because of its effect on fair tariffs. They regard it as unsound, unjust and inimical to the maintenance of a reasonably priced communications service. The National Association of Railroad and Utility Commissioners in the latter part of 1956 adopted a resolution reaffirming this position and advocating the repeal of the tax.

Telephone Companies Must Go "All Out" for Repeal of Excise Taxes

Representative Mills, in the accompanying article, vividly presents the essential reasons why the federal excise taxes on telephone service should be repealed by Congress.

The telephone industry, in testimony before congressional committees during the past few years, has endeavored to persuade Congress that excise taxes on telephone service are grossly discriminatory against telephone subscribers, and that it is unfair and unrealistic to classify, for taxing purposes, such an absolute necessity as telephone service with such luxuries as alcoholic beverages, jewelry, tobacco, cosmetics, furs, etc.

While this industry effort succeeded in bringing about a slight reduction in the telephone excises in 1954, apparently it is going to take more than mere testimony before committees to make Congress, the Internal Revenue Department, the Treasury, and the Eisenhower administration see that they are discriminating against telephone users, as a group.

We believe it is time for managements and employes of all telephone companies—large and small—to let their representatives know, in no uncertain terms, how they feel about the unfairness of the telephone excises—by letter, by telephone, by telegrams, by personal contacts, and by every other conceivable means.

Further, we believe it is time that telephone companies put forth concerted effort to bring to the attention of their subscribers in a direct and forceful way, the amount of excise taxes on local and long distance service that are itemized on each of their monthly bills, and urge them to put pressure on their congressmen to vote for the repeal of these discriminatory taxes. This can be done by newspaper advertising, bill enclosures, a prominently placed colored sticker on each bill, by letter, and by word of mouth when subscribers pay their bills in person.

Commercial people of most companies have received many complaints about the excise taxes when subscribers come to the telephone office to pay their bills, but they must be told that if they are to get any relief, they must make their complaints to their congressmen, who are the ones responsible for the taxes in the first place.

The recent proposal of the Eisenhower administration to switch the collecting of telephone excise taxes from the federal to the state treasuries, makes it imperative that a concerted effort be waged to have these taxes repealed at the forthcoming session of Congress. It goes without saying, that if this power to tax is delegated to the states, it will be almost next to impossible to do away with the excise taxes. (See "In The Nation's Capital," by Francis X. Welch, in the Oct. 12 issue of TELEPHONY, for details of the proposal to shift the collection of the taxes.)

The observations of Representative Mills, and the data he presents, provide good information to be passed on to telephone subscribers in explaining the impact of the telephone excise taxes upon them. In future issues of TELEPHONY, we will present additional information in support of the repeal of these taxes. Next week, Mr. Welch will devote most of "In The Nation's Capital" to a discussion of this most vital issue —one that calls for immediate action on the part of every telephone company.

Current, Prospective Legislation

The Excise Tax Technical Changes Act of 1957 (H.R. 7125), as passed by the House, contains, as section 133 of the bill, a complete rewrite of the statutory provisions relating to communications taxes.

Most of the changes effected by this action are relatively minor and technical in nature. These include a rewording of some of the terminology; elimination of the present exemption extended to common carriers for private branch or extension lines which may be connected with general telephone service, but which, in actual practice, are not; changing of the taxable category of long distance telephone service to toll telephone service; removing the requirement that charges be 25

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REA Approves $2,968,000 in Telephone Loans

Two new telephone borrowers were among the five that received loans during the week of Oct. 21-25 from the Rural Electrification Administration, the U. S. Department of Agriculture has announced. The loans, totaling $2,968,000, were made to telephone companies in Illinois, Nevada, Oregon and Texas. This money will be used to provide new and improved service to 7,300 rural subscribers, 1,560 of whom are now without telephones.

Lincoln County Telephone System, Pioche, Nev.; $70,000, third loan (Oct. 22).

The borrower plans to furnish telephone service to the Civil Aeronautics Administration air ground peripheral facility on Highland Peak.

The three REA loans, totaling $486,000, will enable the borrower to furnish new and improved service to 758 rural subscribers. Its system will consist of exchanges at Alamo, Caliente, Panaca and Pioche; all of which are in operation and serving approximately 550 subscribers.

J. W. Christian is president and manager of the Lincoln County Telephone System.

•

Beaver State Telephone Co., Lakeview, Ore.; $1,197,000, first loan (Oct. 22).

This commercial borrower proposes to use the loan funds to acquire a portion of the West Coast Telephone Co. in south central Oregon, provide initial dial service for 646 rural subscribers in addition to the 1,851 subscribers presently served by West Coast.

Facilities to be acquired by the borrower include seven automatic central offices and one common battery office which serve the towns of Lakeview, Chemult, Chiloquin, Fort Klamath, Paisley, Adel, Plush, Summer Lake and surrounding areas. The present system provides dial service for 1,573 rural subscribers and common battery service for 278 subscribers. The borrower plans to construct an automatic central office to replace the common battery office at Chiloquin, a new automatic exchange at Chemult, and a new garage and warehouse at Lakeview. New automatic facilities will also be installed in the exchange at Fort Klamath. The borrower plans to provide dial service to 2,161 subscribers.

A portion of the loan funds will reimburse the borrower for previously approved construction.

J. G. Lilienthal is president of Beaver State Telephone Co.

•

Texas Farmers Telephone Co., Temple, Tex.; $140,000, third loan (Oct. 23).

The borrower plans to use these loan funds to complete the system previously authorized, and to construct new headquarters facilities at Temple.

Total REA loans to Texas Farmers, amounting to $706,000, will enable it to provide new and improved service to 1,190 rural subscribers. Approximately 700 of these families are now receiving dial service through the borrower's Heidenheimer, Little River, Moffatt, Oenaville, Salado and Zabcikville exchanges.

Fred M. Harrison is president of Texas Farmers Telephone Co. and Albert D. Casey is manager.

•

Mid-State Telephone Co., San Antonio, Tex.; $167,000 (Oct. 24).

With this loan, the borrower proposes to acquire, rehabilitate and integrate the properties of the Big State Telephone Co. at Holland, Tex., now furnishing magneto service to 192 rural subscribers. Simultaneous with approval of this loan, a prior REA loan to the Mid-Texas Telephone Co. of San Antonio, to provide funds for the acquisition of the telephone properties in Holland was rescinded.

An automatic central office is scheduled at Holland. The rehabilitated and expanded system will bring improved service to the existing subscribers and initial service to 120 rural subscribers in the Holland vicinity.

A portion of the latest loan will be used to provide facilities to serve 55 rural subscribers in the borrower's Milano exchange who were not provided for in prior loans.

The three REA loans, totaling $500,000, will make it possible for Mid-State to furnish new and improved service to 1,284 subscribers. The system will consist of non-contiguous exchanges at Buckholtz, Buchanan Dam, Holland, Hutto and Milano.

W. S. Bain is both president and manager of the Mid-State Telephone Co.

•

Western Illinois Telephone Co., Aledo; $1,394,000, first loan (Oct. 25).

The borrower proposes to furnish new and improved service to 4,441 subscribers, including 738 farm families now without telephones. At present Western Illinois provides dial service to 3,052 subscribers through exchanges at Aledo, Joy, Little York, New Boston, Oquawka, and Seaton. It has recently enlarged its service area by acquiring the Andover Mutual Telephone Co. In addition, the Preemption Telephone Association, the Lynn Center Telephone Co. and the Opheim Telephone Co. plan to abandon their facilities in order to obtain adequate and modern service from Western. These four companies are now providing magneto service to 607 rural subscribers.

New automatic central offices are scheduled at Andover, Mathersville and Preemption to serve the additional area.

A portion of these loan funds will be used for interim financing of construction required for conversion of the Aledo exchange to automatic operation, and for acquisition of the Andover Telephone Co.

Provision is also made to refinance indebtedness incurred by the borrower in converting the remaining five exchanges from magneto to automatic operation.

Elnathan Gates is president and A. H. Sanders is vice president and general manager of the Western Illinois Telephone Co.

TELEPHONY'S Traffic Engineering Handbook

By Gilbert R. Brackett

Nov. 9, 1957

Section 6 (Continued)
Selectors

The selector is used for establishing connections between subscribers and subscribers, subscribers and operators or operators and operators.

The mechanical portion of the selector is just about identical to that of the line finder and the connector switches; it employs the same type shaft, wiper, release mechanism, etc.

The selector differs from the line finder in that the vertical stepping of the switch is controlled by the dial of the calling party which means that only one digit is required to put it into action. The rotary movement is entirely automatic and serves to select an idle trunk from the level to which the wipers are stepped by the vertical movement of the shaft.

The specific duties of the selector switch, according to circuit design are:

(1) Guard and prevent the trunk and line finder from releasing.

(2) Lift the shaft and wipers to the dialed level.

(3) Prepare the release circuit.

(4) Rotate wipers automatically to select an idle trunk.

(5) Extend line through to next switch.

(6) Release when parties hang up.

The first selector digit one (1) is subject to "preliminary impulses" which are false dialing signals that may be caused by inadvertently lifting the handset off its cradle, or by intermittent shorts in the outside plant facilities. To counteract this, level one may be used as the second digit of special codes, the first digit being assigned to an unlocking function.

Digit absorbing is a feature of switching equipment which will cause the switch to reset after a digit is dialed. Such resetting may merely place the switch and all associated equipment back in normal position, or it may reset the switch and all levels will perform a regular function on subsequent dial pulls. Although there are variations of the functions that follow, any selector may be made to preform in accordance with one of them.

The normal operation of the selector in general use is one in which "cut through" (trunk selection) occurs immediately after any digit is dialed. Selectors, other than firsts, will usually be of this type.

In-coming selectors equipped with dial tone must be specified when it is proposed to furnish dial tone on repeating tie trunks to indicate further dialing is necessary.

Types of Selectors

Normal: This selector cuts through in accordance with the normal functions of a selector, using the first digit it receives regardless of the order in which the digit is dialed.

Absorb Repeatedly: Equips the level with three features, depending on the order in which the digit controlling it is dialed. The first digit dialed, no matter what feature is associated with the level reached will remove dial tone—

(1) If the digit associated with it is dialed as an initial digit, dial tone will be removed and the switch will reset.

(2) If the digit associated with it is dialed after dial tone has been removed, but before a digit associated with the unlocking function is dialed, the switch will reset.

(3) If the digit associated with it is dialed after the digit controlling the unlocking function is dialed, the switch will cut through.

Block: Equips the level with two properties, depending on the order in which the controlling digit is dialed—

(1) If the digit associated with it is dialed before the digit controlling the unlocking function is dialed, the selector will return a busy tone.

(2) If the digit associated with it is dialed after the digit controlling the absorb and unlock function is dialed, the switch will cut through as in the normal operation of a simple selector.

Absorb and Unlock: Equips the level with two features, depending on the order the digit associated with it is dialed—

(1) If the digit associated with it is dialed for the first time and dial tone has not been removed, dial tone will be removed and the switch will reset. All levels of the selector will then cut through on the succeeding digit as in the normal operation of a selector, that is, the selector is unlocked.

(2) If the digit associated with it is dialed for the first time and dial tone has already been removed, the switch will reset. All levels of the selector switch will then cut through on the succeeding digit in accordance with the normal functions of a selector.

In any dial exchange exceeding the capacity of the two-digit system a first selector is directly coupled with each line finder for handling calls to extensions, central office trunks, attendant trunks and dial or repeating tie trunks. In other words, the number of first selectors required are the same as the number of line finders engineered. First selectors are connected back to back with line finders—one first selector for each line finder.

When a five-digit numbering scheme is needed to accommodate both initial and ultimate capacity of the exchange, the numbering will usually start with the 2000 series. Some of the considerations in assigning numbers are:

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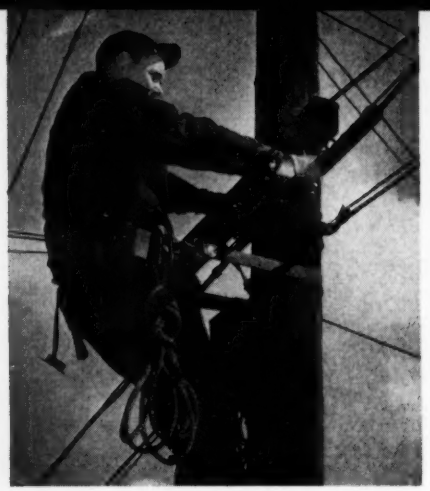

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

THE 60th Annual Convention of the United States Independent Telephone Association was a great success as all who attended will attest. Over 3300 registered for an all-time high.

The Plant Department was well represented. The fifth and the greater part of the sixth floors of the Conrad Hilton hotel were occupied by exhibits. There was more electronic equipment on exhibition this year than ever before. The exhibit rooms were well patronized and everyone appeared to be seeking information on equipment, material and tools that could be used to advantage in their systems.

The convention badges this year carried the name and home town only and did not indicate the company represented by the wearer. This caused some confusion and we heard of a few cases where salesmen were attempting to sell salesmen. This reminded us of the old prohibition days when bootleggers in some localities were required to wear badges so that they would not sell hootch to each other.

We shall not attempt to comment on all of the numerous new devices that were on display at the convention. We shall, however, briefly describe a few which appeared to be of special and general interest.

Printed circuitry and electronic switching are subjects of special interest at the present time. It was also noted that operating people are all extremely interested in carrier and microwave systems. Mobile radio and automatic ticketing systems are also items of major interest.

It is gratifying to note that Independent telephone people are all in agreement that it is most necessary that we take advantage of all of the latest devices available in communication if our success is to continue.

We were agreeably impressed by a simple device for use as universal digit absorbers to be employed in small exchanges so they can meet the universal numbering plan. These units may be added to any existing dial switchboard to pad in three digits of exchange code or four digits in the case of a small three-digit dial unit. These units are compact, fully wired and easily installed.

Then there were the universal digit registers for use on trunks to insure positive supervision on dialed toll calls to tributary dial exchanges. This equipment can be advantageously applied to "trunk on line" dial units where five or more digits are required to be delivered to a three or four-digit link in a tributary exchange. This apparatus returns supervisory signals of ring-back tone or all-link busy condition.

The electronic sentry is a recently developed device that warns against fire, theft or other hazardous conditions. When an "alert" condition occurs, the primary detecting device will cause the warning unit to go into action. This primary detecting device could be a thermostat, a pressure control, a capacitance burglar detecting device, a water level measuring device or any control capable of closing a switching circuit.

When the warning unit is activated by any of these devices, the electronic sentry automatically sends a tape-recorded message to a telephone at the fire department, police station or any other pre-determined location.

Telephones of the latest design—and in all popular colors—were displayed in all their glory. Coiled cords in matching colors were used throughout. There were also loud-speaking telephones; hard-of-hearing telephones; dial-lighted telephones, and key-type telephones as required to meet all special service requirements.

Then perhaps the prize of the lot was a so-called automatic loudspeaking telephone which was really new and different. To use this telephone, a switch is set on any number from "1" to "5." If the digit 2 is selected, after the second ring on an incoming call, the microphone and loud-speaker are connected automatically.

The conversation then takes place as over a conventional loud-speaking telephone. When the calling party hangs up, the special telephone is restored to normal and is ready to receive the next call. It would seem that this type telephone would prove especially desirable for use of bedridden patients in the home or hospital.

Telephone answering devices that answer the telephone and take messages while the subscriber is away from his home or office are proving popular and useful. A dialing device that provides automatic calling by name is now available and will undoubtedly come into general use in the not-too-distant future. Recorder-announcer equipment is also being used for intercept and other similar purposes to save operators' time.

Telephone booths for both inside and outside use were very much in evidence. Various styles in wood, aluminum and steel were on display. We noted one that was round instead of the conventional square.

Paystations are now available in 10 popular colors. Burglar-resistant housings are being provided on paystations. The lower housing and coin-box door will be constructed so that more power is required to pry them open. All parts are so closely fitted that it is impossible to insert a burglar tool of any kind.

Considerable progress is being made in material for use in the splicing of plastic cable. Terminals of new design and splice closures are provided that

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Teacups, Ceremony and Sales

by John Voss

In many ways people all over the world are the same. They have many of the same goals and ambitions—but they do differ at times in the *way* they do things.

In a place like Japan, for example, they're great believers in ceremony. A great many Japanese businessmen, modern as they are, still stick to the old, traditional way of doing business. It works something like this.

Businessman Ichi wants to make a deal with Businessman Ni. After long-drawn-out arrangements, they meet in a private room in a good restaurant. They exchange polite greetings, and then tea is served in tiny little teacups. They drink it constantly all during the meeting.

They talk a good deal about their health, their families, their families' health and similar matters. It may be hours before they get around to business, and even then they kind of skirt around the edges. It's very unlikely that anything gets decided that day. It may well take several more meetings and lots more tea before the deal is completed.

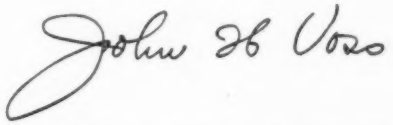
Of course, we in America are not geared to do business this way. We're fast and direct, and most of us spend little time on ceremony. But at the same time, I think we can learn something from the Japanese.

Here's what I'm getting at. In our desire to get things done quick, we sometimes move *too* fast. My personal feeling is that we *can* take some time to chat about things in general and get to know the people we want to do business with. And that's the way we work at Stromberg-Carlson.

Suppose, for example, your company has never done business with us before, and one of our representatives calls on you. His first aim is simply to get acquainted . . . find out what some of your needs and problems are. He may call on you several times during this get-acquainted period. And while he may not offer you large quantities of tea, casual, friendly chatting is not excluded!

When our man starts to discuss business with you, he'll be able to talk in *specific terms* based on *knowledge of your needs.* He'll be well prepared to show you exactly how our equipment will help you provide better service to your subscribers and boost your profits at the same time. In other words, he'll give you the kind of thorough, personalized service that has become a kind of Stromberg-Carlson trademark. Of course, when you have a problem that needs quick action, you'll find we move real fast!

To get back to our original story, maybe it would be helpful to our Japanese friends if that country's business people put a little less emphasis on tea and ceremony and more on direct selling. But at the same time, it may very well help us in America if we slowed down a bit to get better acquainted before we get down to facts and figures.



Vice President and General Manager
Telecommunication Division

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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

House sub-committee will begin probe of federal regulatory commissions next January . . . opening preparations indicate dangers that investigation will be bogged down in partisan politics and will develop anti-business and anti-utility bias.

IT WILL not be until next January that a special House investigating subcommittee will formally tee off on its probe of the federal regulatory commissions. But already several federal agencies — notably the Federal Communications Commission (FCC) — are beginning to sweat. This special House group—which has the comical name of "Committee on Legislative Oversight"—was authorized at the last session to find out if the federal commissions are doing their duty.

It was the brainchild of House Speaker Rayburn. So when Speaker Rayburn thinks of a federal commission doing its duty, he naturally thinks of a commission doing what Congress (or a majority of Congress) wants it to do. The fact that a number of these commissions have fallen under majority control of Eisenhower appointees is a consideration not advertised so openly.

Of course, in theory as well as law, these regulatory commissions are supposed to be independent. They are supposed to regulate in the public interest without being influenced by either legislative or executive pressures. But the House investigators insist that what they are looking for is evidence that the regulatory commissions have been really carrying out the "intent of Congress" rather than answering the telephone from the White House.

Actually, the whole thing is in grave danger of being bogged down in partisan politics. Furthermore, the opening preparations suggest that the Committee on Legislative Oversight is also likely to develop a strong anti-business and anti-utility bias.

Last September, the committee staff, headed by Prof. Bernard Schwartz of New York University Law School, sent a rather searching questionnaire to the Federal Communications Commission and the Civil Aeronautics Board (CAB) and to the leading industries —such as the radio and television networks—which they regulate. The questionnaire wanted to know about any gifts or benefits (such as railroad transportation, hotel bills, meals, entertainment, etc.) which the commissioners or their staffs had received directly or indirectly from the regulated industries.

It is easy to see the implication of this questionnaire. And, the members of the FCC and the CAB saw it very quickly. They plainly implied that it was an insult and a smear. The CAB reluctantly agreed to open its files to committee investigators, who also wanted to know about all correspondence and conversations between commission members and regulated industry representatives.

At this writing, FCC members had refused to answer the questionnaires, at least until they could arrange a conference with the chairman of the investigating committee, Representative Moulder (D., Mo.). Ironically, they were unable to get in touch with Moulder, who has been traveling in the Orient (presumably at the taxpayers' expense) and was not scheduled to return to the United States until mid-November. Radio and television networks, unable to meet the Oct. 17 deadline for answering the questionnaire, were given an extension of time.

It goes without saying that regulatory commissioners should not accept substantial gifts or favors from companies or industries which they are supposed to be regulating. But, there are social amenities which are not only harmless but actually expected. This writer, for example, has a lifelong friend on one of these commissions. Is he to be ever after barred from having lunch in a hotel or entertaining his friend at home because this writer might be "indirectly identified" with a regulated industry? The obvious answer, of course, is that any regulator who could be influenced by the price of a meal or a theater ticket has no business on a regulatory post in the first place.

But, next year is an election year and with all of the federal commissions due to go on the griddle of this investigating committee, we can easily see what may soon be coming up. Congressmen—some of whom are among the most notorious freeloaders on the Washington scene—may be counting up lunch checks or traveling expense vouchers to find out if our regulatory commissioners are 100 per cent pure—especially if they were appointed by a president of the political opposition. Perhaps it won't turn out that way at all, but if it does, it can be said in advance that partisan politics would almost certainly prevent any constructive result in this investigation.

There are some congressmen who would even like to see the traditional independence of the regulatory commis-

NARUC Calls for Repeal of Telephone Excises

As this issue went to press, we were informed that the National Association of Railroad and Utility Commissioners, meeting in convention last week in Memphis, Tenn., adopted a resolution calling for the repeal of the federal excise taxes on communications.

It is understood that the resolution also recommended that the NARUC appoint a committee to coordinate the association's efforts in support of the repeal of these taxes.

sion junked entirely or severely curtailed. They would like to tie these commissions to congressional apron strings, even with respect to regulatory policies and decisions. Representative Moss (D., Cal.), a member of the investigating committee, suggested one possible result. "We could decide," said Moss, "the commission-type agency is not the answer, that Congress should go right in and directly control all aspects of their operations." This comment recalls the kind of legislation introduced last year by Pacific Northwest Democratic senators to curb the powers of the Federal Power Commission to license hydro projects without congressional approval.

Aside from the headline possibility of exposing petty chiseling or the acceptance of small favors by regulatory personnel, a more substantive "reform" proposed by Professor Schwartz is even more disturbing. Dr. Schwartz is a legal scholar of impressive attainments and we must assume that he will keep the investigating committee from becoming a political football if he can help it. But, his own proposal for "policing the administrative process," outlined in the January (1957) issue of the American Bar Association *Journal*, is really a puzzle.

In brief, Dr. Schwartz, as this writer understands the January article, would have a congressional committee sitting as a permanent supervisor of the regulatory commissions. It would not be a one-shot investigating job. It would be a real "policeman," to borrow the professor's own expression. This committee would oversee all the regulatory operations and procedures. It would also provide a "forum" outside of the commission itself, where disgruntled citizens could "ventilate" their complaints against the commission.

Dr. Schwartz feels that such "constant" policing would be a salutary thing and keep the commissions on their toes. He points out that the commissions operate under laws passed by Congress to carry out their "intent." And, who would be a better judge of the congressional "intent," or the way it was being carried out, than Congress itself, or a permanent committee thereof?

We can easily see the complications that would arise from Dr. Schwartz's proposal. Anybody who lost an important case before the commission would have a blanket invitation to go back and try it all over again before a congressional committee on the basis of a complaint against the commission.

Probably the best answer to this suggested form of "super regulation" is contained in another article in the current (October) issue of the American Bar Association *Journal*. It was written as an obvious reply to Dr. Schwartz by another distinguished attorney — a member of the Maryland Bar, former U. S. Sen. Herbert R. O'Conor Jr. (Dem.), who is also a former governor of Maryland.

Mr. O'Conor thinks that the present regulatory commission setup should be left alone and that Dr. Schwartz's proposal is fraught with mischief. Said Mr. O'Conor:

"It would appear that in the present system of substantial, but not complete, independence of the administrative tribunals from Congress, the courts and the executive branch may have produced the exact degree of balance that justice needs. To disturb that equipoise is a risky thing at best.

"The agencies have freedom but if they exceed their powers or subvert fair play they must answer in the courts of the land. If they fail to do a good job they are called on the carpet at Capitol Hill.

"Neither of these checks has been abused and yet the knowledge that they might come into play has undoubtedly served to stimulate the agencies into doing an alert and competent job."

O'Conor thinks the work of a regulatory commission is just as important, and its independence from outside influence should be just as much protected, as the work of a judge. The work of a judge cannot be made subject to the supervision of another branch of the government if the judicial department is to remain independent, and the work of a regulatory commission cannot be subjected to back seat driving by a congressional committee if the commission is to remain independent. Mr. O'Conor states further on this point:

"As a matter of fact, the genius of the Constitution is the diffusion of sovereignty—the absence of any one body or agency in which supreme authority is located. It is not overstating the point to say that Professor Schwartz's proposal runs head on into this principle. The concentration of authority over administrative agencies in one congressional committee would mean the enlargement of the control of Congress over the agencies."

Big Ed Vindicated

Two years ago, in this department, your correspondent had some fun with the defiance of a Federal Communications Commission order by the former governor of Colorado, the genial "Big Ed" Johnson. It may be recalled that the FCC, in what turned out to be an offside play, ruled that so-called "booster" stations constituted TV transmission operations and, therefore, must be licensed by the FCC.

An appliance dealer in a little Colorado community, with the intriguing name of "Steamboat Bend" (This is Colorado, remember), was supplying his customers and neighbors with assistance on their television reception by operating just such a booster station. If this operator had to apply for an FCC license, and wait around until the FCC granted him one, if at all, the good citizens of Steamboat Bend would have to go a long while without TV reception.

Governor Johnson was indignant. He ordered the appliance dealer to keep right on operating his booster under authority of the state of Colorado. Since then 12 Western governors joined in protest against the FCC ruling that "on-channel boosters" are illegal unless licensed by the FCC. What did the FCC do about it? Wisely, the commission did nothing immediately.

More recently, it dispatched its best qualified engineer member, T. A. M. Craven, to go out to the wild west area and see what all the shooting was about. Commissioner Craven went out and looked the situation over. He apparently decided that the FCC should reconsider, if not back down entirely.

And, so, Commissioner Craven will soon recommend that "on-channel boosters" should not be regarded as transmitters, but actually as part of television receivers. It is the only way to bring service to a number of small settlements of homes in deep valleys or other difficult terrain which could not otherwise get normal television reception. If, as expected, the FCC approves Craven's recommendation, it will not be necessary for it to license "on-channel boosters." The controversy, therefore, can be settled with a modification of the former order. It is possible that there will be some general regulation or requirement to insure that such "on-channel boosters" are properly installed and operated so as not to interfere with general TV reception in the area.

Making Little Ones Out of Big Ones

A recent article in this department (last week's issue) on Justice Department objections to telephone industry activity in the mobile radio-telephone field has already brought an interesting reaction from an Independent telephone man who saw the advance text. He thought that the Justice Department contention that to insure competition in any industrial field the government should oust or bar the leading competitors, had fascinating possibilities. That is about what the Justice De-

(Please turn to page 53)

Telephone installations show...

How Polyethylene performs in the field

WASHINGTON – Polyethylene-covered cable was first installed in this mountainous region of the Pacific Northwest in 1950. Field experience showed that it was adaptable to any method of hanging and required no special equipment. Installation could be made on existing pole arms without increasing crossarms, pole height, or tree trimming.

The line has withstood extremely heavy snow and ice loading in certain mountain and valley sections. There has been no deterioration despite temperatures 40 deg. below zero. During the summer months, temperatures up to 115 deg. and exposure to sunlight have had no discernible effect.

NEW YORK – Recently, 33,000 feet of cable and 75,000 feet of wire, both insulated with polyethylene, were put into service in upstate New York. Although an unusually large number of thunderstorms were experienced during the year, no lightning damage was reported on these lines. To date, rain conditions have had no effect.

Much of the cable was strung on existing poles, but in the construction of new lines it was found practical to use ⅓ fewer poles. The need for crossarms and tree trimming was also reduced. As a result, maintenance costs in rural areas have stayed low.

XUM

YEARS of service under a variety of terrain and climatic conditions are represented by these field reports. They describe the performance of BAKELITE Brand Polyethylene used as jacketing and insulation for wire and cable.

In every instance, BAKELITE Polyethylene has brought improvements over conventional materials. Its superior moisture resistance has set a new standard in trouble-free operation. Its extremely light weight has saved time and expense in installation. Its toughness has made cable handling easier. Its excellent dielectric strength has far exceeded the needs of telephone service.

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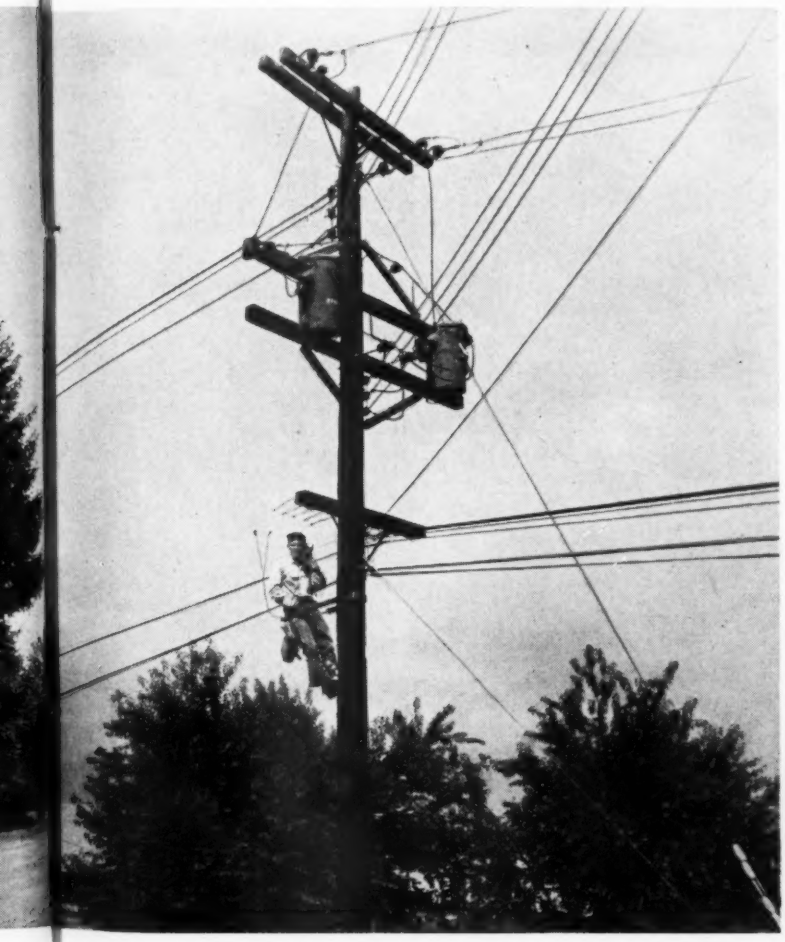
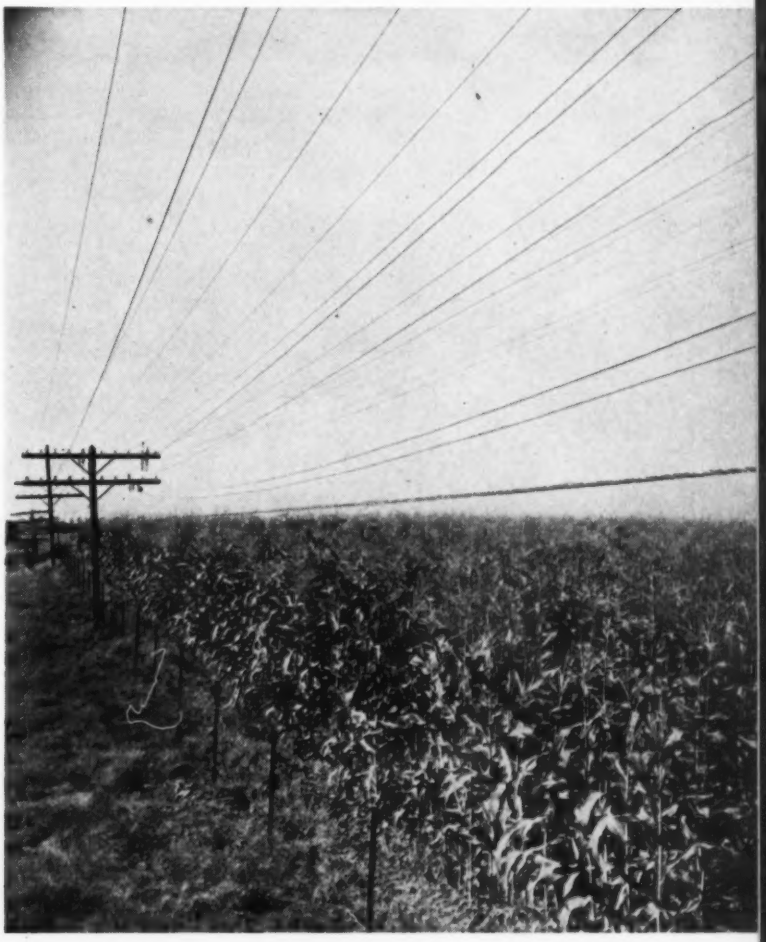


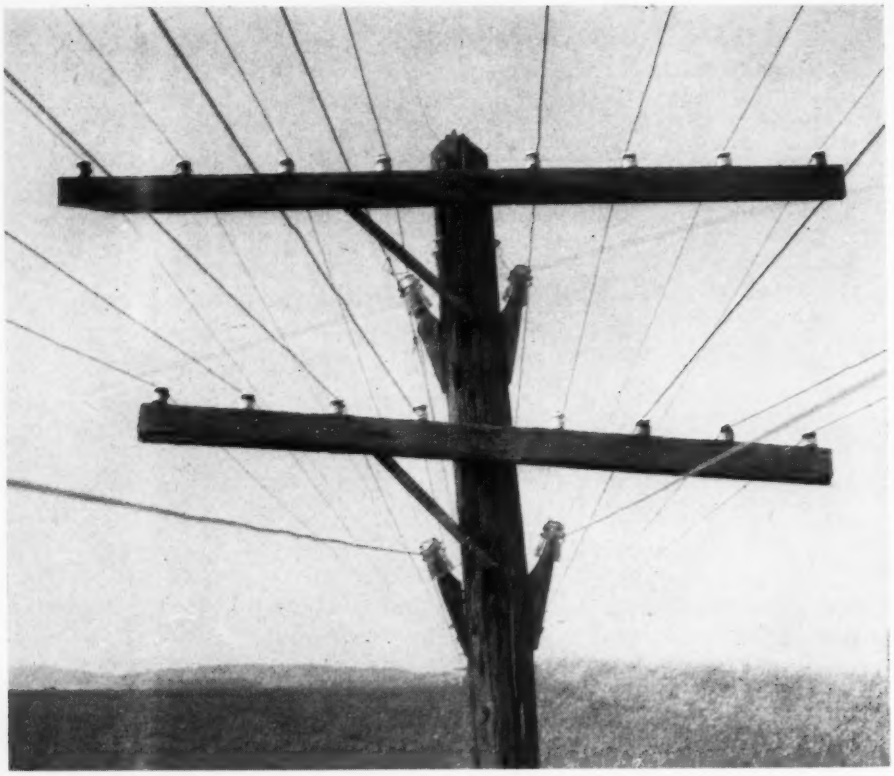
PENNSYLVANIA – Polyethylene has stood up under exhaustive indoor and outdoor tests carried out in western Pennsylvania during the past year. It has effected such savings in installation costs that it will be a major item in purchases for the coming year.

With respect to service life and safety, polyethylene is considered an outstanding improvement over other materials. It has shown unusual resistance to weather and abrasion. Its extremely light weight permits a smaller cable construction that is easier to handle, making for faster installations. It also permits wider pole spans, with a consequent saving in poles and maintenance.



ILLINOIS – Cable with polyethylene insulation and vinyl plastic jacketing has been used in Central Illinois since 1953. Its light weight has resulted in a 5-ft. reduction in pole height, elimination of guy wires and messengers, faster handling of cable, and wider spacing of poles.

Excellent results are reported with spans of 400 feet, compared to the 240-ft. spans needed with conventional cable. The light weight and high strength of the cable assembly are particularly important in winter, lessening the damage from ice and sleet loading. Because of its high dielectric strength, polyethylene now replaces fabric on circuit wiring.



A prospective investor may consider factors other than those revealed in a telephone company's operating statement. One item of interest is whether the condition of the over-all plant is good—or poor, such as the condition indicated in the above photo.

Design and Operation of Small Companies

By R. J. POLLOCK

Part 4

Estimated Cost of Serving an Area

THE ESTIMATED cost of a rehabilitation program should include all items which will contribute to the total cost of the project. It is, therefore, necessary that each account be handled on a separate basis and the proposed expenditures for that account be listed on the estimate sheets. It is not necessary at this point to itemize all material and labor in order to arrive at the cost, since the object here is to create a general picture which will show the amount of money needed to accomplish the proposed program.

In order to do this, an average unit cost list should be prepared which will show all units of property based on the latest material, labor and overhead costs which are available. The material costs can be secured from suppliers' catalogs or recent invoices. If certain items of material, not having standard listed prices have not been purchased recently it may be necessary to get quotations from the supply houses on those items.

In preparing this price list, the additional overhead costs such as freight, warehouse handling charges, and associated general expense, should be added to reflect the actual cost of material and equipment laid down on the job.

It may also be necessary to add anticipated price increases to this cost if the reconstruction program is not going to be undertaken in the immediate future. Past experience has shown that some material prices have increased considerably during a 12-month period. Labor costs are also subjected to this condition.

Labor costs can usually be determined from recent work records and they will vary with each company because of different operating conditions, such as hourly rates and different types of terrain, etc. As an example, the labor required to set a pole where ground conditions necessitate hard digging will vary considerably from one set in light soil. Again, the cost of labor will be directly affected if a higher hourly paid lineman does the work instead of a groundman.

If power equipment is used, the actual hours to set a pole, or anchor, should be determined by the number of units a power-digging crew can place in an average day, compared with the hours needed for a crew of men to do the same work by hand. In other words, the digging machine is actually replacing a number of men; therefore, its operating and carrying charges should be brought into the picture in order to reflect a true unit cost for each pole.

This same condition exists when power and hand labor are used in connection with open wire, aerial and underground cable work.

It may also be necessary to make up an average labor price for some units because of a difference in labor hours required to place the same type of units in plant in the same exchange area.

A part of the rural plant may be constructed in areas where the soil is sandy, whereas other locations might require rock digging. If, then, an estimate is made covering the number of poles in the project which will require different labor expenditures to place them in plant, an average hourly rate for all poles can be determined.

The same procedure should be followed in placing anchors, down guys, brackets, crossarms, and wire, as far as the rural and toll plant is concerned.

Cable plant placed beyond the base rate area is advisable in order to reduce the cost which would result if heavy open wire leads were constructed. This problem will be discussed in a future article and is brought out here only to point out the reason for setting up a unit cost for cable used entirely for rural purposes. If the same unit price is used for the same size of cable

in both urban and rural locations, some difference will result both from a material and labor standpoint.

In rural areas, the spans are usually longer and will, therefore, require less pole line material. Also terminals are not used in the same proportion for each 1,000 feet of line and, on the average, they are smaller in size. This would suggest that a different unit cost be used for the same cable placed in the rural plant if an excessive amount is to be installed. However, if the rural plant represents only a small portion of the total cable plant, then this procedure is not practical.

The span lengths used will determine the number of poles and associated pole line material used in a mile of lead and will vary with the kind of wire being used, along with the type of terrain. However, if, as an example, 250-foot spans are specified with high strength wire, the number of poles for any given mile of construction will not vary considerably from those required for an average mile.

In wooded country, tree trimming costs per mile should be set up as an average expenditure for two and four-wire bracket leads along with one carrying additional wires on a crossarm. Normally, these costs vary considerably over an exchange area, so that their inclusion in a unit per mile cost for all leads would appear to be misleading. Nevertheless, they can amount to a large expenditure and must be considered either on the unit basis or as a separate cost for the entire exchange.

The cost for right-of-way will also have a bearing on the unit cost picture and, if used extensively, it will result in a large cash outlay. Normally, this type of expense is not large, compared with other costs, since the majority of all leads are constructed within the highway limits, but this procedure could result in large future maintenance and plant removal expenses because of road rehabilitation work.

If, then, we add the material cost of the poles, brackets, spikes, anchors, guys and associated hardware, wire, sleeves and insulators, along with the labor to place this material in plant, we can secure the average cost for one mile of a two-wire bracket lead. This figure multiplied by the number of miles of this type of lead, as determined by the survey, which was outlined in the first article of this series (TELEPHONY, Oct. 12) will give the total cost for all the two-wire bracket leads in the rebuilding program.

The same procedure should be followed for all open wire leads carrying additional wires, in order to arrive at the total cost for the open wire plant. However, this method is suggested with the assumption that the plant will not contain any copper wire which is carried on the same lead with rural iron wire.

The use of copper will result in shorter span lengths and, therefore, a higher lead cost-per-mile for both the pole and wire plant. The use of Copperweld wire will supply the improved transmission compared with iron wire and will not materially affect the pole line design unless excessive long span construction is contemplated, but it will have a direct bearing on the unit cost figures.

Cable used in the urban plant will account for a large part of the total reconstruction cost. The geographical layout of a city would affect this type of plant so that it would have a bearing on the total plant investment, which might be out of proportion to that normally experienced. The estimated cost of it should, therefore, be set up to reflect any unusual conditions. However, if the various codes such as aerial, underground and submarine cable are figured on an individual basis, all conditions will be evident when the total cost figure is completed.

In setting up the unit figures for the aerial plant, it would be advisable to prepare one for lead covered cable and another for plastic cable. This should cover only the sizes which are available in both types of sheath.

The estimated cost of splicing plastic cable should be the same as that for lead cable, less the cost of the lead and cotton sleeving. In their place the cost of electrical tape should be added, and sheath continuity can be secured by salvaging the aluminum wrapping and reusing it after the wire splicing is completed. All other conditions, with the exception of the cost of the cable, will be the same as for lead cable as far as the estimated cost picture is concerned.

The pole lead for urban plant is usually figured on a per-pole basis, with units set up for different sizes of poles. It is not advisable to consider contacts on "foreign" poles as a reduction in the number of poles to be placed, since the other utility may wish to contact an equivalent number of larger size poles to be set by the telephone company.

Estimating the cost of underground conduit may be difficult, since many of the smaller companies have not encountered any appreciable amount of that type of work in the past. However, any local excavating contractor can supply the cost of trenching and backfilling on a per-foot basis, to which should be added the cost of laying the duct and replacing the pavement, if any.

Incidentally, the difference between the cost of placing a conduit-run which will fill the anticipated future requirements, and one which has duct space to provide for cable beyond those requirements, can be considered a very good investment if future service demands necessitate enlargement, due mainly to the increased labor and material costs. This is especially true if a permanent pavement and other street improvements are in place.

Underground cable unit costs should also be made up on the per-thousand-foot basis, since it is simpler to proportion the splicing costs. However, a smaller foot-unit is advisable in those cases where the runs between manholes are short, and where the cable rapidly reduces in size throughout the underground system.

The removal of all plant which will be replaced will require a labor expenditure that is chargeable to the cost of the project. Therefore, a removal account for each code should be set up on the same basis as those covering new construction. Any material which can be salvaged and is reusable, along with the cash to be received for that sold as junk, will constitute a credit against the money needed for the new project.

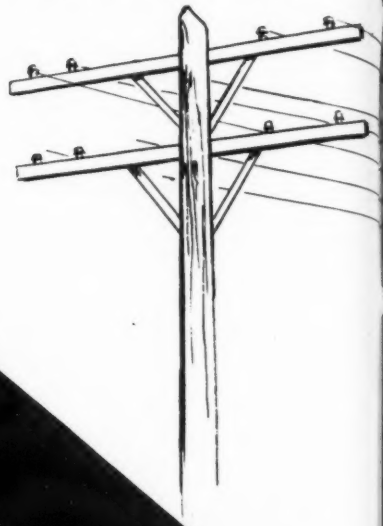
Any maintenance costs on plant to be reused in the rehabilitation program in order to make it conform with the proposed work, cannot be considered as a capital expenditure, but the extent of it should be determined in connection with the total estimated cost of the program.

In the event that the proposed plan requires that the central office be relocated, the cost of the new property will come into the picture. Again, if the present location is company-owned, the amount received from its sale after the cut-over date will reduce the cost of the new land purchase. However, any improvements which might be necessary on the new location, such as sidewalks, curbs, grading, and filling, should be considered as a capital expenditure in the estimated cost.

The approximate cost of the new property can be obtained from a local realtor, but greater accuracy can be realized if recent land transfers are examined. Here, the recording data at the Register of Deeds office will show the amount of documentary stamps attached to the warranty deed which will indicate the actual cost of the transfer within $100. If the registrar's records are not open to inspection, an abstracting company will supply the information for a small fee.

(Please turn to page 32)

For *Modern* Party Line Operation →



Typical relay case
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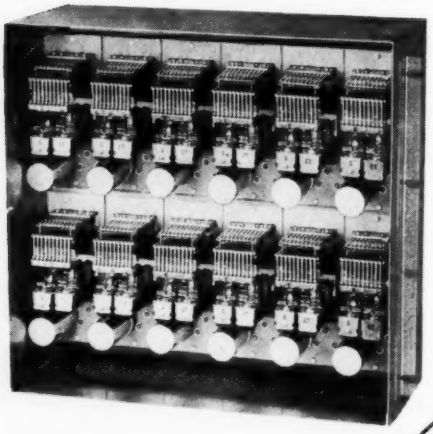

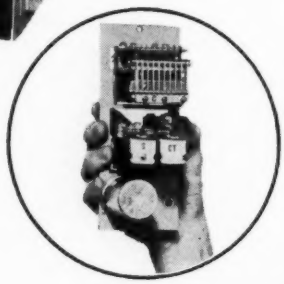

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If a new building is to be constructed, the ultimate cost may be far in excess of that anticipated because of increases in building material and labor. Also, compared to costs of erecting the ordinary business type of construction, the cost of a telephone building will be higher because of requirements for central office equipment requirements. The geographical location may permit a slab type foundation instead of an excavated basement with its associated footing, sidewalls, and concrete floor.

Slab type construction may call for all conduit runs being cast into the slab and, when we consider the cost of possible future changes, the advisability of floor duct runs are evident. Overhead cable and electrical runs can be accomplished at a more reasonable cost but they have disadvantages, especially on circuits feeding various power panels, since they will require exposed runs from the ceiling to the equipment. However, telephone cable entrances are more desirable on the overhead basis, especially with plastic cable.

The ceiling height for the equipment room should be sufficient to accommodate automatic switching equipment.

The building should be of fireproof construction. While the cost might be greater for this type, the actual insurance costs would be less, not considering the probable cost to the company should a fire occur in a non-fireproof building. Any reliable building contractor can supply an estimated cost if given rough details of the construction desired.

The complete building cost should include the furniture and fixtures which will be needed to place it in operation.

The cost picture is now complete except for the central office equipment, and a decision will have to be made as to the type of operation desired. While, of course, ultimately automatic equipment will probably have to be installed, an existing switchboard may be serviceable for some time to come.

However, traffic labor costs in exchanges of 750 stations and less would increase if and when the operator exemption in the present federal wage and labor law were eliminated. This might necessitate going to automatic operation in advance of the planned schedule, but if the building has been designed with that thought in mind, the conversion will not be too costly as far as the displacement of serviceable equipment is concerned.

The various manufacturers are in a position to supply the cost of any new central office equipment to fulfill requirements.

The above plan will enable the company to set up an estimated cost for the entire rehabilitation project and the amount of positive thinking used throughout will determine how close the estimate will be to the actual cost when the job is completed.

A large number of rehabilitation programs which have been undertaken in the past have been under-estimated because all the facts were not taken in consideration in advance. Past customer surveys indicate that a certain proportion of the prospects who state at the time of the canvass that they do not want telephones in their homes will apply for it shortly after the rehabilitation work is completed. This condition will be discussed in a future article and it is pointed out here merely to emphasize the necessity of making allowances for this additional business in the estimated cost of the complete program.

Briefly stated, the estimated cost phase of the work covers the actual customer survey with allowances made for additional anticipated business, laying out the rural plant required, laying out the necessary cable plant (both rural and urban), the underground plant if any, the real estate requirements, the central office building and equipment, all of which add up to the total cost. This work, of course, is necessary before any lending institution can be approached for new money required to do the job.

A budget made up to show the above expenditures can be prepared to extend over the period during which the rehabilitation program is being carried out and will be of material assistance in laying out the necessary financing program.

Financing of Project

An expansion and rebuilding program of any size will usually create the problem of obtaining new capital which will have to be solved before the reconstruction plans are undertaken. This includes the necessity of obtaining an upward rate revision to supply the added revenue needed to cover the increased costs of operating the new plant.

Whether or not the higher rates can be secured will determine whether the complete program should be carried out. The interim period, between the time when expenditures are made and when the new rates go into effect, also presents a financial problem, especially in the smaller companies.

New capital is available through various private lending institutions, the Rural Electrification Administration, from equipment manufacturers, and from the sale of securities, all of which are subject to the rules and regulations of regulatory commissions.

However, in seeking new capital telephone companies are put in competition with non-regulated enterprises, and as the earnings of these enterprises are higher than the "regulated" earnings of telephone companies, there is a tendency for the investor to look to the non-regulated businesses for his investments.

This presents a serious problem for all telephone companies; especially the many small ones, whose earnings have not been too good, due mainly to inadequate rates, increasing operating costs, and little or no increase in stations. In many cases, rates sufficient to provide the necessary income to cover operating expenses and to provide adequate earnings, would be prohibitive, economically.

Operating costs cannot be reduced below those necessary to supply a good grade of telephone service so there exists in the small company field a condition which can be called "the point of no return." Many other types of small businesses faced with the same problem have solved it by consolidating with other small concerns to improve their operations and earnings.

The really small telephone company can consider the same solution. It has been suggested that, under present-day operating costs, any telephone company in order to be a sound economic unit and to be able to secure adequate new capital should have around 1,500 stations. Many small companies have consolidated with neighboring small companies to form a larger, improved and profitable operation.

This supposition may not be true in a community where the stock in the telephone company is held by local residents, who have confidence in the management, and who might not be interested in getting a "going" return on their investment.

In some such cases, the company has been able to secure additional new money needed to carry out its plans by issuing and selling additional stock locally. Local investors provide a wonderful source of new capital for small companies that have, in the past, shown the ability to operate as a going concern. They should not overlook them in planning their financing program.

The investor who does put his money in a company which operates one or only a few small exchanges probably does so because he feels that the return will be fair over a period of years. This decision, in many cases, probably will be based on the favorable conditions shown in the survey made for the rehabilitation program. Also, the

(Please turn to page 55)

you can relax because Preformed dead-ends never will

Preformed Dead-Ends and Guy-Grip dead-ends hold full rated strength of strand

These dead-ends won't relax their tight grip. Once on, the only way to remove Preformed dead-ends or Guy-Grip dead-ends is to do so intentionally. Because of the non-slip grip and because there are no concentrated stresses and no fatigue points, your guy and messenger strands are 100 per cent safe.

Some other advantages are apparent, too. For instance, you will notice that, with Preformed, you dead-end the B-rural messenger without cutting it. Other dead-ends require cutting and some require tools for application. Also, Preformed makes it possible to go around corners without splicing.

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Inaugural ceremonies in Honolulu for the transpacific telephone cable took place in the historic throne room of Iolani Palace, the only royal palace in the United States. The throne room is maintained today as it was during the days of the monarchy. Participating in cable ceremonies were, left to right: Malcolm MacNaughton, president of Honolulu Chamber of Commerce; Admiral Felix B. Stump, commander-in-chief, Pacific and U. S. Pacific Fleet; Governor of Hawaii William Quinn; J. Ballard Atherton, president, Hawaiian Telephone Co.; John A. Burns, delegate to Congress; and Roger Ames, chairman of the Public Utilities Commission, Territory of Hawaii. The former royal palace of the Kingdom of Hawaii now houses the executive offices of the territory. More than 130 dignitaries and guests filled the room, as press, radio, and television recorded the ceremony on October 8.

The Transpacific Telephone Cable

By Ralph O. Beck Jr.*

LAYING OF a submarine cable between Hawaii and California this year is the most important step in transpacific communications since 1931. The cable was placed in service on Oct. 8 with appropriate inaugural ceremonies in Honolulu, Washington, D. C., and San Francisco.

This is the culmination of a dream men of Hawaiian Telephone Co. have held for more than half a century.

It was Dec. 23, 1931 when the first official call was placed on what was then the new transpacific radio-telephone system. After years of experimentation by Bell Telephone Laboratories, R.C.A., and our company, the connection between Hawaii and Oakland, Cal. was inaugurated. About the same time, an inter-island radio-telephone system was placed in service.

And now this year, through the joint efforts of our company and American Telephone & Telegraph Co., the longest and deepest undersea telephone cable becomes a reality.

The transpacific cable is not the first submarine cable that is operating. An experimental one was placed between Key West, Fla. and Havana, Cuba in 1950. This test cable proved the efficient and sturdy design of the amplifier or repeater sections. It is the ability of these repeaters to boost the electrical signal as it passes along the cable that makes underseas telephone communications possible.

The second cable was the transatlantic, connecting Newfoundland and Scotland. Both it and the one joining Port Angeles, Wash. and Ketchikan, Alaska were completed last year. From all reports, all three cable are operating excellently.

The cable, which will bring California as close to us as the house next door, terminates at its western end at Point Arena, a small coastal town about 100 miles north of San Francisco. Microwave radio connects the cable to both Sacramento and Oakland.

*Mr. Beck is vice president, industrial and public relations, of the Hawaiian Telephone Co.

The western end of the cable comes ashore at Hanauma Bay on the island of Oahu, where the terminal equipment is housed in a building nestled in the cliff halfway up the side of Koko Head crater. When the channel in which the cable is buried was dredged, the dredging operations left a new two-acre swimming pool as the only visible sign that the cable had come ashore.

The 37-million-dollar joint project between AT&T and our company culminated years of research and testing on the part of Bell Telephone Laboratories.

The problem of transmitting voice signals across long underwater distances was basically one of power. It was impossible to provide enough power at one end to transmit the voice signal all the way to the other end.

Back in the late Twenties the Bell Labs began their experimental work on tiny vacuum tubes which could operate under the severe conditions which exist at the bottom of the sea. Depression

years interrupted their work, so that it was not until 1941 that the final circuit design was established. World War Two stopped progress again. The Key West-Havana cable finally tested under operating conditions what the scientists had been working on theoretically for more than 25 years.

The repeaters are amazing electrical devices. They must be able to operate efficiently at extreme temperatures and pressures which exist at ocean depths, and do so for 20 years or more without interruption. It is like a radio set operating continuously round the clock for more than 20 years!

The tubes which Bell Laboratories designed and built back in 1941 have been doing just that under changing pressures and temperatures without a single failure. Their design made possible such marvelous telephone connections as our transpacific cable.

The approximate cost of each electron tube which goes into the transpacific cable is placed at $600. The repeater, which contains three tubes plus a number of other circuit components, costs approximately $60,000. There are 57 repeaters in each of the twin cables.

The 8-foot-long repeater must accomplish another amazing action—it must bend around a 7-foot sheave while being paid out during the laying operation.

To obtain the necessary flexibility, the nearly 60 components in each repeater are mounted in a series of 17 linked lucite cylinders. These cylinders are surrounded by two layers of steel rings, the rings in each layer overlapping the joints in the other layer. Finely machined, they provide the strength necessary to withstand sea-bottom pressure of about 8,000 pounds at the 3-mile depths of the Pacific.

A cylinder about 8 feet long of copper made to rigid specifications as a protection against any undesirable effects from the action of salt water, is placed over the steel rings. It in turn is protected by layers of jute and armoring wires. At each of its ends the repeater enclosure is equipped with a system of water-tight seals. The whole structure, including the central section, tapering ends, and final leads, makes a complete unit about 80 feet long.

More recent discoveries, like transistors, could not be included in these repeaters because there is no record of long-term, trouble-free service. AT&T estimates the cost of repairing a repeater which fails at nearly half a million dollars. Obviously there could be no guess-work in this operation.

Extreme care was exercised during the manufacturing and testing of these

Inspecting cable end aboard Cableship "Ocean Layer." Left to right: J. B. Atherton, president of Hawaiian Telephone Co.; Loren A. Bailey, staff supervisor, special projects, American Telephone & Telegraph Co. Long Lines Department; James E. Dingman, director of operations, AT&T Long Lines; Captain J. Marshall, master of "Ocean Layer;" and H. M. Richards, member of board of directors, Hawaiian Telephone Co.

units, and this makes possible their long life. The plant was air-conditioned and temperatures were maintained at 73 to 77 degrees. Humidity was controlled at 40 per cent throughout most of the plant. In certain areas where the type of work demanded it, the humidity was dropped to 20 per cent.

Orlon slacks and shirts and orlon surgeon's caps were worn by all employes. Nylon smocks were used when the employes moved from locker areas to the entrance doors. Employes used one locker for their street clothes and one for their plant clothes. Dust counts were thus maintained at levels below any hospital count.

Every operation was inspected, and employes who handled key operations were tested each day before they were allowed to work. If they failed, they didn't work that day.

The basic portion of the cable is not as complex as the repeaters. The cable consists of two basic parts, the coaxial or electrical transmission path, and the armor or outer protection and strength members.

The coaxial section is made up of three parts, the central conductor, insulation, and the outer or return conductor. The central conductor is composed of a copper center wire surrounded by three copper tapes wound around it. The insulation is a polyethylene compound which is extruded tightly over the central conductor. This insulated central conductor is called the cable core. The outer or return conductor is composed of six copper tapes wound over the insulation.

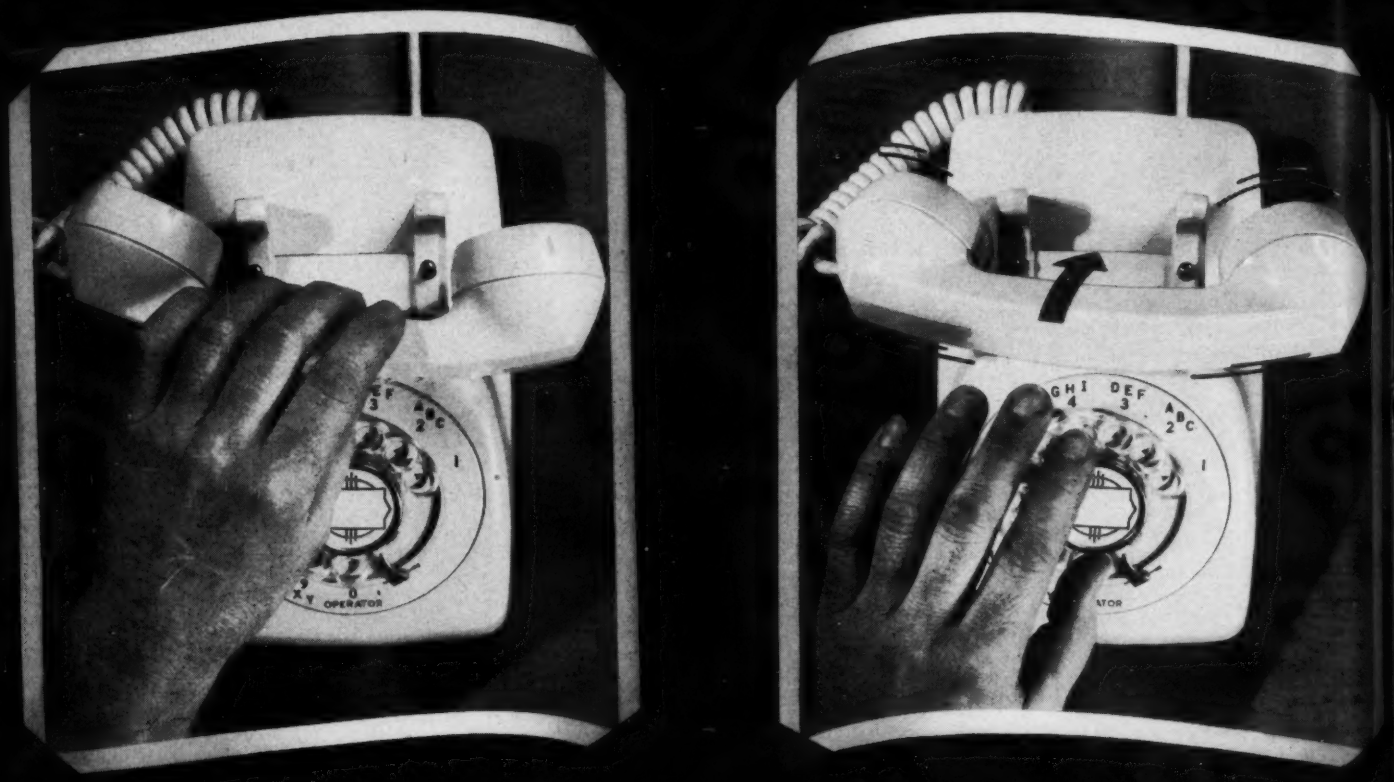
The protection and strength components are composed of first another thin copper tape to keep out a shallow water worm called teredo. Then a fabric-tape binding, a layer of jute rove for armor bedding, the textile-covered armor wires, and finally two layers of jute yarn flooded with an asphaltum-tar compound.

The deep-water cable is 1¼ inches in diameter. Because of wave action and possible ships' anchors fouling the cable in shallow water, it varies at lesser depths between 1¾ inches to a little more than 2½ inches. This increase is due to additional layers of armor wiring and jute. The central portion of the cable remains the same.

Last year, the Liberty ship Arthur M. Huddell brought more than 5 miles of shore-end cable to Hawaii. In November, the two sections of cable, each 2½ miles long, were loaded aboard a barge, pulled through the barrier reef in Hanauma Bay, and then placed out the mouth of the bay into the Molokai Channel.

This year, the largest cable ship in the world, HMTS Monarch, along with the C. S. Ocean Layer and the Huddell (acting as a cable transport) completed the job.

(Please turn to page 40)



Picture-Story of a Telephone Company

*$1.50 is an estimated average cost-per-trouble-trip, based on field reports. For some companies, it is less; for others, substantially more.

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Automatic's Type 80 Telephone
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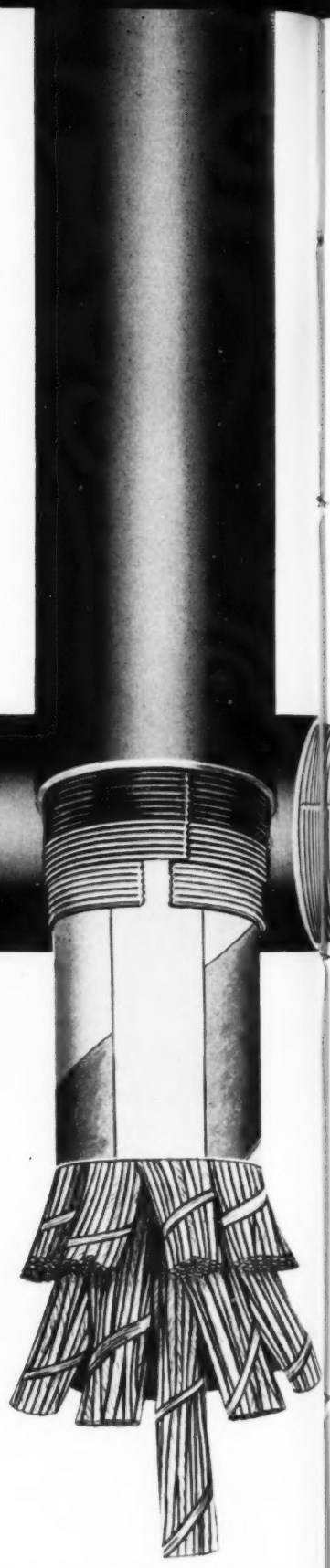

Now — Leich offers you Alpeth and Stalpeth Sheathed Cable — General Cable's two new types of sheaths. Here you have two types of telephone cable with all the protective qualities you need, without all the excessive weight.

Installation is more economical with these new developments. For example, in aerial installations, there is a reduction in messenger strand size and pole supports, or an increase in span lengths. With these lighter weight sheaths, pulling in underground systems is easier and less expensive.

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Alpeth is ideally suited for polyethylene insulated telephone cable. It consists of a combination of 2 components: a low-resistance aluminum tape shield applied longitudinally over the cable core; and an extruded, high molecular weight, moisture- and weather-resistant polyethylene jacket. Alpeth has full color coding. Available in conductor sizes, 26 AWG, 24 AWG, 22 AWG and 19 AWG in cables ranging from 6 to 404 pairs. Send your inquiries for prices and deliveries now!

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Stalpeth offers a superior degree of protection against diffusion of moisture and is better suited for protection of paper insulated telephone cable. Stalpeth consists of 3 components: first, a corrugated aluminum shield tape is applied longitudinally over the cable core; secondly, a corrugated, coated steel tape is applied longitudinally with the overlap seam soldered; and finally, an extruded, high molecular weight, moisture- and weather-resistant polyethylene jacket is plastic cemented to the steel tape. Available in sizes 26 AWG, 24 AWG, 22 AWG, and 19 AWG in cables ranging from 16 to 2121 pairs. Send your inquiries for prices and deliveries now!

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INDEPENDENT

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The Monarch, owned by the British Post Office and leased to AT&T, spliced onto the shore end of the first cable at Point Arena and then steamed for Hawaii. She emptied her holds at 1,600 nautical miles, buoyed off the cable and steamed into Honolulu to load again from the Huddell.

Meanwhile, the Ocean Layer, owned by the Submarine Cables, Ltd., of London, and also leased to AT&T, had come into Honolulu and then gone out to pick up the end of the cable and finish the laying to Hanauma Bay.

After both were reloaded, the Ocean Layer started out on the second leg, laying approximately 700 miles. The Monarch, sailing later, spliced onto the end of the cable and completed the laying operation by picking up the other shore end at Point Arena, and making the last splice. The last splice was completed on Sept. 12.

During the entire laying operation, the cable was under test. As each repeater went over the side, more tests were made from aboard ship to be certain the cable was operating properly.

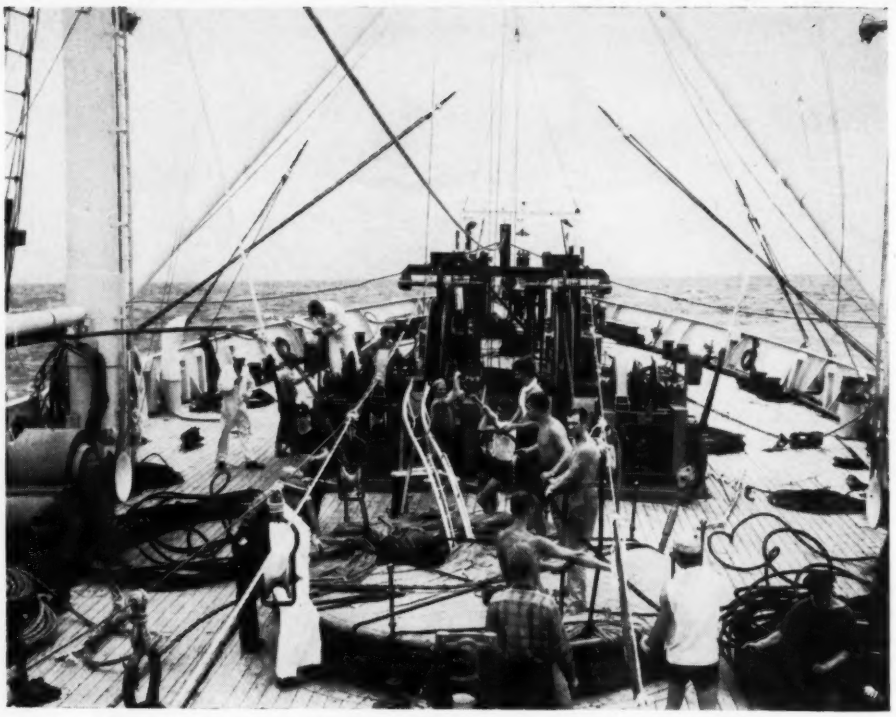
The length of each of the twin cables is approximately 2,100 nautical miles. They lie about 25 miles apart on the ocean floor, in depths over 3 miles at places.

The new cable provides 36 voice channels as compared to the 14 radio channels which previously connected Hawaii to the mainland. Thirty-five of the channels will be used for conversations and the last will be used for teletype service.

With the advent of the new cable, Hawaii became a part of the Direct Distance Dialing (DDD) system which now involves approximately 6,500 communities on the mainland. That is, those cities in the system can call any number in Honolulu. Operators in Honolulu, when placing a call to any of these cities, can dial directly the number desired. There will be no intermediate operators handling a call.

Radio transmission is subject to atmospheric conditions. The ionosphere, the layer high up in the heavens off which the radio waves bounce, moves periodically. It thickens and thins, depending on atmospheric conditions. The radio waves then may bounce past their destination. Sun spots which cause these conditions sometimes put our radio-telephone system completely out of service.

During 1956, there were over 200,000 calls completed to the mainland. Our 14 radio circuits were just not enough. We needed more circuits, but because of already crowded conditions in the frequency spectrum it would be difficult to obtain them. A submarine telephone cable was the logical answer.



Deck scene aboard Cableship "Ocean Layer" en route to Hawaii.

Although the new cable will be able to handle the transmission of radio broadcasts it will not be used for television. The wide transmission band necessary for television would mean the repeaters would have to be about 8 miles apart instead of their present 40. The amount of power that would be necessary to operate that number of repeaters would be impractical at the present time.

I have mentioned that the cable is expected to operate continuously for more than 20 years. However, it is conceivable that some portion of the repeaters might fail. Since we will continue to operate a number of the radio-telephone circuits, calls will then be placed to the mainland by radio.

A cable ship will then steam to the cable, grapple for it with a large clam-shell-like grapple, and cut it. Repair repeaters, which have already been manufactured, will be spliced in, along with additional cable. The new section will be dropped back down to sea bottom and the cable will again be in operation.

The cable route, during laying, was plotted so the exact position of the cable could be determined.

The Huddell, when bringing the shore end cable last year and again this year, made test soundings of the proposed route. During last year's run, they found an uncharted sea mount which rose to a height of nearly 11,000 feet. It was roughly 18 miles in diameter at its base, and its summit lay about 900 fathoms under the sea.

The mountain, now called "Mount Huddell" after the survey ship, unfortunately lay right in the path planned for the cable route. After traveling around the peak and its vicinity, the survey ship was able to find a good bypass route.

Constant checking every step along the way, through manufacturing, planning for laying and the laying operation itself, was made to assure optimum conditions for the cable.

Even complex terminal equipment was designed so there is a standby for every phase in case of equipment or power failure.

Installation of the longest, deepest submarine telephone cable in the world, puts Hawaii practically next door to any place on the mainland. The completion of this 37-million-dollar project continues to emphasize the importance of our community in the Pacific.

Transatlantic Cable

A story on the transatlantic telephone cable system, which was inaugurated last year on Sept. 25, appeared in TELEPHONY, Oct. 6, 1956. The deep-sea segment of that cable extends 2,250 miles from Clarenville, Newfoundland, to Oban, Scotland.

A second transatlantic cable is planned to link America with France and Germany, and will be laid in 1958 from Penmarch, France to Sidney Mines, Canada (TELEPHONY, Aug. 10, p. 44).

Courts and Commissions

19 Companies Ask FCC OK Of $60,000,000 Expansion

Authority to build additional communications facilities at a cost of about 60 million dollars was sought on Oct. 29 in an application filed with the Federal Communications Commission by the Long Lines Department of the American Telephone & Telegraph Co., 17 other Bell companies and the Carolina Telephone & Telegraph Co.

James E. Dingman, director of operations for Long Lines, said that Long Lines share would amount to about 52 million dollars and that the proposed construction outlined in the application represented but a portion of the program for 1958 and early 1959. Installations covered in the application would provide about 4 million channel miles of telephone facilities, 2.2 million miles of telegraph channels and additions to television facilities.

He added that long distance traffic along principal routes was up about 9 per cent during the current year. "The facilities proposed will provide about 7,000 additional circuits to meet an anticipated increase in long distance usage in 1958 and early 1959," he said.

Major cable projects listed in the filing included the conversion of several coaxial cable routes to a system which would triple their present capacity. These are located in Virginia, North Carolina, Georgia, Mississippi and Texas.

The application also touched on plans for construction of a number of radio relay systems in the East and Southeast. These would connect with "express routes" recently built through the open country to by-pass some of the nation's larger cities.

Minnesota Commission Approves Six Purchases

The Minnesota Railroad & Warehouse Commission on Oct. 24 and 25 authorized the Pineland Telephone Co., McGregor, to purchase all the telephone property of the following companies:

Clark Township Telephone System, Tamarack (22 stations).

Denham Cooperative Telephone Co. (87 stations).

Haugen Township Telephone System, Tamarack (15).

Tamarack Telephone Exchange (55).

Willow River Telephone Co. (115).

The commission also approved the Pineland company's buying the franchises, rights of way, and subscribers' contracts of the Salo Cooperative Telephone Co., Lawler, which had been serving 98 stations.

Missouri Companies Request Authority to Sell, Finance

The Missouri Public Service Commission during October heard or received the following applications:

Gladys Brown, to sell the Lanagan Telephone Co., to Albert and Jewell Butts. Heard on Oct. 23.

La Plata Telephone Co. on Oct. 8 was authorized to extend the effective date of $200,000 mortgage notes to General Dynamics Corp. from Dec. 18, 1956 to Aug. 31, 1958.

Madison Telephone Co. on Oct. 11 asked to issue 1000 shares of common stock without nominal or par value.

General Telephone Co. of Missouri applied to sell and Inter-County Telephone Co., to buy, certain telephone properties.

Miami Telephone Co. sought to issue promissory note for $3000 to Kellogg Switchboard & Supply Co.

Purcell Telephone Co. was authorized to borrow from Kellogg Switchboard & Supply Co., $13,000 for improvements to the exchange.

Granby Telephone Co. on Oct. 31 filed for authority to issue notes for $81,000 to Stromberg-Carlson Co., a division of General Dynamics Corp.; the company on Oct. 31 also asked to increase its common stock from 120 shares, par value of $25, to 400 shares, $25 per share.

Stock Register in Cal.

California Water & Telephone Co. registered with the Securities & Exchange Commission 250,000 common shares, $12.50 par, to be offered by a Blyth & Co., Inc., syndicate, it was reported on Oct. 31.

Carolina T&T Plans Rate Increase Under Bond

The Carolina Telephone & Telegraph Co., Tarboro, on Oct. 28, acting under a statute which permits utilities to put rate increases into effect after posting bond or other security to guarantee possible refunds to customers, notified the North Carolina Utilities Commission that it plans to put rate increases into effect on Nov. 15, which would bring in an additional 1½ million dollars a year.

Commission Chairman Stanley Winborne said that it marked the first time a telephone company had bid for higher rates under the statute providing bond, instead of filing a petition requesting commission authority to raise rates before actually putting the rates into effect. In some quarters the move was seen as a precedent for telephone companies in rate cases.

The commission may approve the rates by taking no action on them or suspend the changes pending a hearing.

In 1952-53 Carolina T&T and the Commission waged a battle over proposed rate increases which would have brought in more than 2½ million dollars a year, the case going to the state supreme court and back to the commission again before the company received commission's authority to increase rates by $537,210 a year (TELEPHONY, Sept. 1, 1956, p. 42; Jan. 2, 1954, p. 28).

The company has some 150,000 subscribers in eastern North Carolina.

The company, in its latest move for rate increases, blamed "continued inflation affecting both the cost of maintaining telephone service and improving such services," and proposed to raise the 1½ million dollars by putting 28 exchanges into higher-paying group classifications, which would bring in about $192,000 a year, and then putting general rate increases into effect for all of the 111 exchanges, which would bring in the rest.

The company said that of the $1,500,000 additional gross revenue expected from the changes, the company would retain only about $600,000 after taxes.

(Please turn to page 44)

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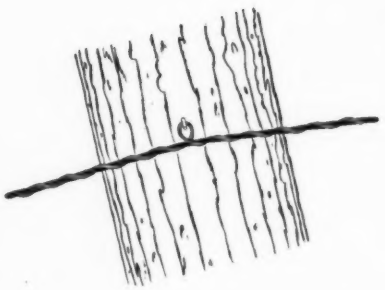

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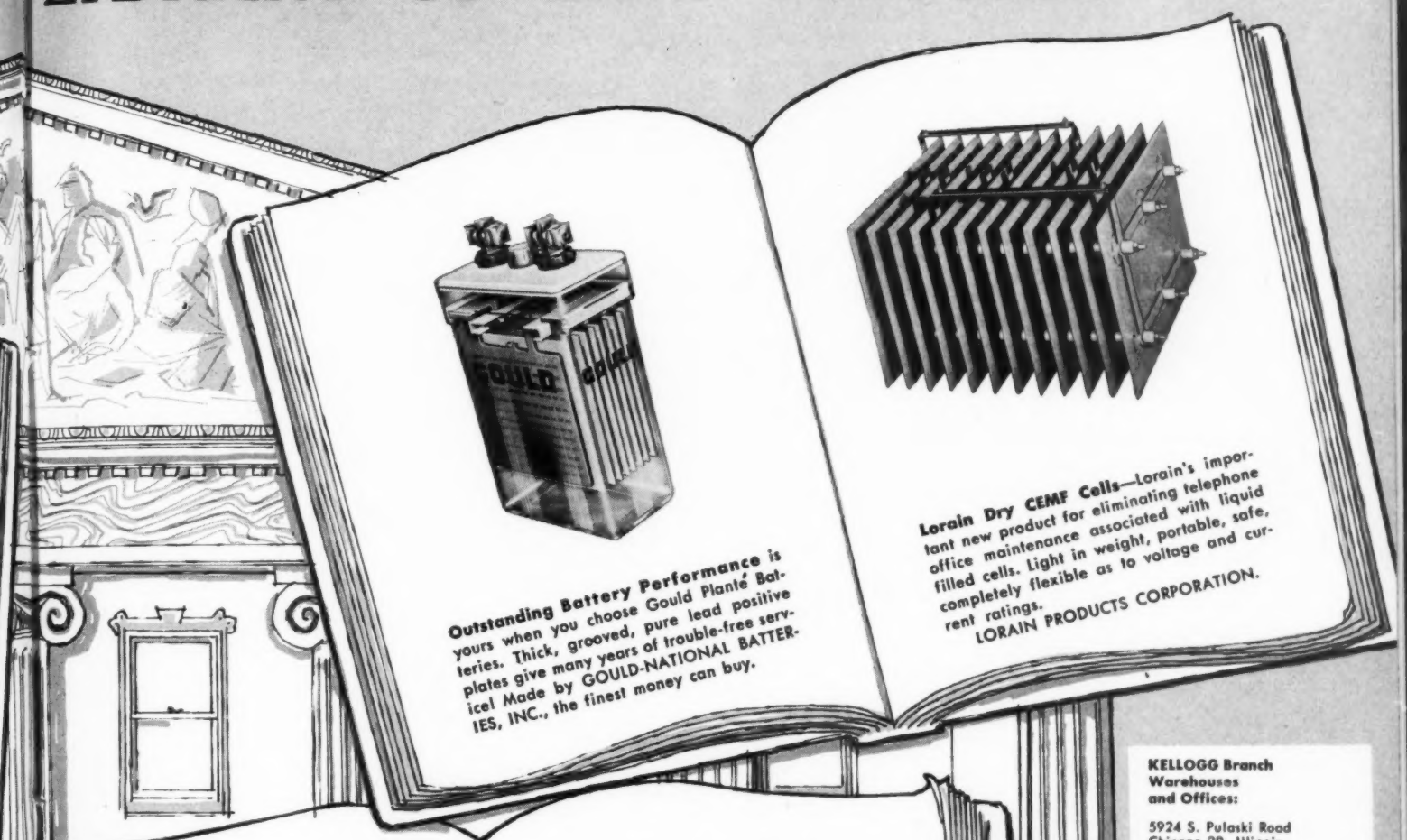

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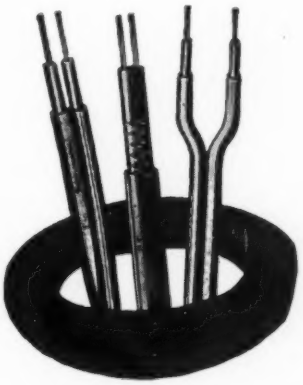

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As an indication of the continued effect of inflation, Vice President J. F. Havens stated the company's total plant investment had increased from 37½ million dollars at the end of October 1952 (the investment date for the last rate proceeding) to 76 million dollars by the end of August 1957, or an increase of more than 100 per cent.

During the same period the number of telephones increased from 105,000 to about 150,000, or an increase of 42 per cent.

During the period since the last rate proceeding, the company, Mr. Havens said, has granted across-the-board increases in pay to its employes on five different occasions, one of which was considered in the 1952 rate proceeding. Total payments to personnel since 1952, giving consideration to the increase in number of employes during the period, have increased from about 4 million dollars for the year 1952 to more than 7 million dollars in 1957 based on seven months annualized.

The cost of providing telephone service also has been affected, Havens said, by an increase in taxes, including ad valorem taxes paid to counties and towns.

Havens also brought out that the cost of its cheapest form of permanent capital, i.e., bonds, has increased considerably since 1952 and that its last issue of bonds totalling 14 million dollars was at a cost of 4.77 per cent.

The cost of short-term borrowings also has increased and at the present time the interest rate charged by banks to the company was approximately 5 per cent as compared to 3¼ per cent in 1952.

The cost of short-term borrowings also has increased and at the present time the interest rate charged by banks to the company was approximately 5 per cent as compared to 3¼ per cent in 1952.

The application filed with the commission indicated that the 1½ million dollars of additional gross revenue would raise the return on the company's investment at the end of July 1957 to approximately 6 per cent which is still not deemed adequate in view of present capital costs. The application stipulated that the company at a later date would file an additional application with the commission asking for a fair return on the fair value of the property under then prevailing conditions.

Mr. Havens stated in 1956 expenditures to provide adequate service were made totaling more than 13 million dollars and that in the first eight months of 1957 expenditures have been made at the rate of 1½ million dollars per month. Based on remaining demand, it is contemplated that 12 million dollars of additional expenditure will be required in 1958.

"To carry on such an expansion program," Mr. Havens said, "it is absolutely essential that the earnings be sufficient to attract the necessary new capital from investors."

Georgia Independent Gains $17,955 Increase in Rates

Mutual Telephone Co., Manchester, on Oct. 23 secured authority from the Georgia Public Service Commission to increase rates by $17,955.

Net operating revenues for the 12 months ended June 30 amounted to $21,663. With the estimated increase of $17,955 approved for the company, gross revenues upon conversion of the Manchester exchange facilities would amount to $161,667 annually (including $5,000 of estimated increased toll revenues), the commission found. Also, after an adjustment for the effect of increased income taxes, net operating revenues would amount to some $26,752.

The company's net investment in plant was found to be $547,301. Old and new rates for the company's Manchester, Warm Springs and Woodland exchanges are:

	Old	*New*
One-party business	$5.50	$ 7.00
Two-party business	4.50	6.00
Four-party business	3.50	5.00*
One-party residence	3.00	4.25
Two-party residence	2.50	3.25
Four-party residence	2.25	2.75
One-party rural:		
Business and residence 0-2 miles beyond the base rate area	9.00	10.00
(For each additional quarter mile or fraction thereof beyond 2 miles from the base rate area)	—	0.40
Rural multi-party:		
Business, flat rate	4.00	5.00
Residence, flat rate	2.50	3.25

*Four-party service at Woodland exchange only. This class of service to be discontinued at the Manchester and Warm Springs exchanges.

Ask Stock Issue in N. Y.

The New York Public Service Commission on Nov. 7 was to hear the petition of Morris E. Stiles, doing business as Williamstown Telephone Co. and Williamstown Telephone Co., Inc., for authority to transfer telephone works and system and for authority for Williamstown Telephone Co., Inc. to issue 50 shares of common stock and 130 shares of preferred stock.

OK Easing of Unauthorized Attachment Rules in Neb.

Rules and regulations of the Northwestern Bell Telephone Co. relating to unauthorized attachments and connections were liberalized at the company's request on Oct. 15 by the Nebraska Railway Commission.

Revisions apply to the company's general rules and regulations, Teletypewriter exchange service tariff and mobile telephone service tariff. The order permits the following exceptions to existing regulations:

(1) Devices to obtain quietness or privacy, provided any such device does not involve direct electrical connection to the equipment of the telephone company, or any change in or alteration of such equipment, or interfere with its proper function or damage it in any way.

(2) Devices which serve the customer's convenience in his use of the facilities of the telephone company, provided any such device would not endanger the safety of telephone company employes or the public; damage, require change in or alteration of, or involve direct electrical connection to the equipment of the telephone company or interfere with the proper functioning of such equipment.

Illinois Independent Seeks Raises for Dial Service

Eastern Illinois Telephone Co., Rantoul, on Oct. 29 was reported seeking approval of a $12,521 increase in revenues from the Illinois Commerce Commission.

Sample rates for the present manual and the soon-to-be-available dial service for Rantoul, Flatville and Gifford:

	Manual	*Automatic*
One-party business	$5.25	$9.25
One-party residence	4.00	5.25

Lincoln T&T Gets OK To Set Suburban Rates

The Lincoln Telephone & Telegraph Co. was authorized by the Nebraska Railway Commission on Oct. 15 to establish an average exchange line mileage rate for one and two-party line service in an area southeast of Lincoln now served by rural service. The area is developing as a suburban residential area of Lincoln.

An offering of rural service will be continued.

Wis. Company Asks Raise

Turtle Lake Telephone Co. was to have a hearing on Nov. 6 on its application to the Wisconsin Public Service Commission for authority to raise rates.

TELEPHONY'S Traffic Engineering Handbook

Concluded from page 21

(1) Outgoing trunks to other central offices.
(2) Tie trunks between offices.
(3) Operator trunks.
(4) Local second selectors, etc.

Second Selectors

The second selector is the second step in the train of selection and responds to the second digit or letter dialed.

The addition of a second selector in the train of switches permits the size of the office to expand beyond 800 lines.

In a four-digit system it is the "hundreds" selector. In a five-digit multi-office area it is the "thousands" selector, similarly as the first selector is a "thousands" selector in a four-digit system. It may be located in the office in which the call originates or in a terminating office. In the latter case, it is called an "incoming" second selector. In a six-digit multi-office area where a combination of two digits is required to select a trunk to another office, it is an "out trunk" selector.

TRUNKS	SELECTORS PER SUBGROUP																TRUNKS
	320		240		160		120		80		60		40		20		
	CCS CAPACITY PER																
	SEL	GRP	SEL	GRP	SEL	GRP	SEL	GRP	SEL	GRP	SEL	GRP	SEL	GRP	SEL	GRP	
10	.47	149	.63	150	.95	152	1.28	154	1.95	156	2.63	158	4.10	164	9.10	182	10
11	.52	168	.71	170	1.08	172	1.45	174	2.20	176	3.00	180	4.65	186	10.50	210	11
12	.59	188	.79	190	1.20	192	1.62	194	2.47	198	3.37	202	5.25	210	11.90	238	12
13	.65	208	.87	210	1.33	212	1.78	214	2.73	218	3.73	224	5.85	234	13.20	264	13
14	.71	228	.96	230	1.45	232	1.95	234	2.90	238	4.10	246	6.45	258	14.50	290	14
15	.77	246	1.05	268	1.56	250	2.12	254	3.25	258	4.33	266	7.00	280	15.80	316	15
16	.82	264	1.11	266	1.68	268	2.27	272	3.48	278	4.77	286	7.60	304	17.10	342	16
17	.88	282	1.18	284	1.80	288	2.43	292	3.73	298	5.15	308	8.20	328	18.20	364	17
18	.94	300	1.26	304	1.91	306	2.60	312	3.98	318	5.50	330	8.80	352	19.20	384	18
19	.99	318	1.34	322	2.09	334	2.77	332	4.25	340	5.90	354	9.45	378	20.20	404	19
20	1.05	336	1.43	342	2.15	344	2.93	352	4.50	360	6.27	376	10.10	404	-	-	20
21	1.11	354	1.50	360	2.27	364	3.08	370	4.77	382	6.65	398	10.75	430	-	-	21
23	1.22	390	1.65	396	2.51	402	3.42	410	5.32	426	7.60	444	12.20	488	-	-	23
25	1.33	426	1.80	432	2.76	458	3.75	450	5.88	470	8.17	490	13.25	530	-	-	25
27	1.44	462	1.95	468	2.96	474	4.08	490	6.44	515	9.00	540	-	-	-	-	27
29	1.56	498	2.10	505	3.19	510	4.42	530	7.00	560	9.92	595	-	-	-	-	29
31	1.67	535	2.27	545	3.44	550	4.75	570	7.56	605	10.75	645	-	-	-	-	31
33	1.78	570	2.44	585	3.69	590	5.13	615	8.12	650	11.58	695	-	-	-	-	33
35	1.89	605	2.58	620	3.94	630	5.46	655	8.69	695	12.42	745	-	-	-	-	35
37	2.02	645	2.73	655	4.22	675	5.79	695	9.31	745	-	-	-	-	-	-	37
39	2.14	685	2.90	695	4.47	715	6.17	740	10.00	800	-	-	-	-	-	-	39
41	2.25	720	3.04	730	4.72	755	6.54	785	10.63	850	-	-	-	-	-	-	41
43	2.36	755	3.19	765	4.97	795	6.87	825	11.25	900	-	-	-	-	-	-	43
45	2.48	795	3.35	805	5.25	840	7.25	870	11.87	950	-	-	-	-	-	-	45
	320		240		160		120		80		60		40		20		

NON-GRADED GROUPS

TRUNKS	1	2	3	4	5	6	7	8	9
CCS CAPACITY	.4	5.4	16	30	46	64	84	105	126

Selector Multiple Table—10 Terminal Access—1 in 100

Determining Second Selector Requirements

Assume 540 hundred second calls (CCS) are submitted to the second selectors by the 157 first selectors.

In the case of second selectors, 5 per cent is added to the original CCS as a safety factor.

540 CCS × 1.05 = 567 CCS

567 CCS ÷ 157 first selectors = 3.61 CCS per selector.

Now we refer to the accompanying "Selector Multiple Table—10 Terminal Access—1 in 100." Under the 120 subgroup column we find that 3.61 CCS calls for 25 trunks, leaving 37 first selectors not provided for.

37 Selectors × 3.61 CCS per selector = 134 CCS

The figure 134 CCS does not appear in any of the total columns of the "Selector Multiple Table—10 Terminal Access—1 in 100." When we refer to the non-graded groups at the bottom of the same table, it does not appear there either, so we must use the first figure in the 120 subgroup column which is 154 CCS, which calls for 10 trunks.

Therefore, the second selector requirements for the office would be:

120 first selectors multipled on 25 second selectors and 37 first selectors multipled on 10 second selectors, which add up to a total of 35 trunks, required to carry the traffic load from the 157 first selectors to the second selectors. Insofar as each trunk would terminate on a second selector, there would be a total of 35 second selectors provided for the office.

Another Example

(1) Assume 586 CCS is being submitted to the second selectors by 240 first selectors. (5 per cent safety factor included.) 586 CCS ÷ 240 first selectors = 2.44 CCS per selector.

(2) One method of subgrouping 240 first selectors would call for three subgroups of 80 selectors requiring 12 trunks per subgroup or a total of 36 trunks. See the subgroup column 80 in "Selector Multiple Table—10 Terminal Access—1 in 100."

586 ÷ 36 trunks = 16.3 CCS per trunk

(3) Another method of subgrouping would be to assign all the 240 selectors on one subgroup of 33 trunks. 586 CCS ÷ 33 trunks = 17.8 CCS per trunk

Comparing method 2 and method 3 above, method 3 is better since it requires only 33 trunks as against 36 trunks for method 2.

17.8 CCS ÷ 16.3 CCS × 100 = 109.2. In other words method 3 is 9.2 per cent more efficient.

However, should the CCS load per trunk have the possibility of a future increase beyond the calculated 2.44 CCS per selector which might call for future retrunking, it would be well to use method 2 as it is more flexible to future arrangement. Under the 80 selectors subgroup in the "Selector Multiple Table—10 Terminal Access—1 in 100," the load can be run up to 80 first selectors on 35 trunks with each trunk carrying 8.69 CCS.

Music of Industry's Wheels

"Our population grows. Commerce crowds our rivers and rails, our skies, harbors, and highways. Our soil is fertile, our agriculture productive. The air rings with the song of our industry—rolling mills and blast furnaces, dynamos, dams, and assembly lines—the chorus of America the bountiful."
—DWIGHT D. EISENHOWER, *President of the United States.*

Plea for an Objective View

"Let us believe neither half of the good people tell us of ourselves, nor half the evil they say of others."—J. PETIT-SENN.

Conversational Interest

"One thing which makes us find so few people who appear reasonable in conversation is that there is scarcely anyone who does not think more of what he is about to say than of answering precisely what is said to him."
—LA ROCHEFOUCALD.

Some families lead

XUM

the way...

In nearly every community there are families that are first in trying new ideas and adopting better ways. The Will Gill, Jrs., of Madera, California, are such a family. They're in the vanguard of the new age of telephone convenience. "Modern living makes several phones a must," they say. "We want them handy around the house."

And not only are the Gills setting an example in their own community, but also in communities across the nation. An advertisement about them and their modern ideas of telephone convenience is appearing this month in nine leading women's magazines, read in homes throughout the country.

It's an ad that should help every one of America's telephone companies to sell the importance of telephones in modern living.

MODERN HOMES HAVE HANDY PHONES

Working together to bring people together

BELL TELEPHONE SYSTEM

XUM

construction and maintenance DIGEST

- **More protection than ever**
- **Lead in reserve**
- **Anti-aging cable**
- **In the (sq.) groove**

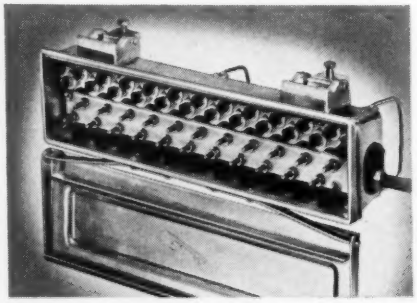
Published regularly to help you get the most out of your materials and supplies dollar

by Gerald C. Gaydos, Inside Sales—Chicago

In my spare time I like to do crossword puzzles, but there's never any puzzle about the advantages of ordering supplies from Stromberg-Carlson. No matter where you're located, you're protected by a double guarantee on the fine products you order from Stromberg-Carlson . . . ours, and the maker's. This way, when emergencies make special demands—you're not alone. You find **two** solid companies right beside you, eager to help. That's how our 62-year reputation in the industry has grown. That's why it pays you to order from Stromberg-Carlson—leader in the research for new and better telephone equipment. We'd like you to know we appreciate your support.

Terminal with New Protector

Now get more dependable protection than ever for station or cable—with Reliable Electric Company's strand mounted terminals.



Precision manufactured terminals of highest quality

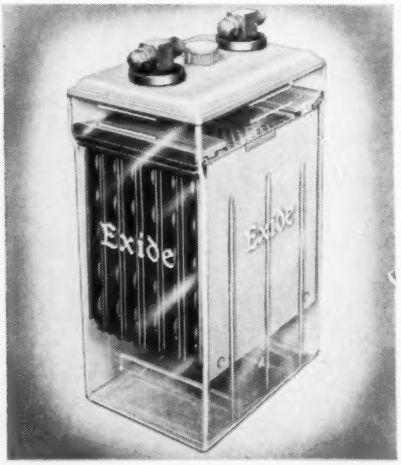
These terminals are equipped with the new Reliable Fuseless Protector Unit, which dissipates static discharges across elements to ground.

Another important feature is that the silicon bronze binding posts on which cable stubs are terminated are sealed with the wires in a glass-reinforced polyester resin of exceptionally high dielectric qualities.

Surface leakage is minimized or completely eliminated by 1-1/16" spacing of binding posts.

Reserve lead keeps battery young

Inside the unique lead buttons in an Exide-Manchex positive plate there's a coil of reserve lead designed to prolong battery life. Over the years, as this lead is needed, it goes into action, instantly and automatically.



The unique thing about Exide-Manchex construction is that the reserve lead does not have to support the plate. The spiral lead buttons are tightly locked into a cast lead-antimony alloy grid several times more rigid than pure lead. Hence the reserve lead can be completely consumed while the plate retains its strength.

Only Exide-Manchex Batteries have this construction. In addition, they feature a plastic jar that saves weight and space, high level electrolyte for less frequent filling, and huge bottom reservoir that virtually insures against sediment shorts.

To be sure of top quality, specify Exide-Manchex Batteries when you order through your Stromberg-Carlson representative.

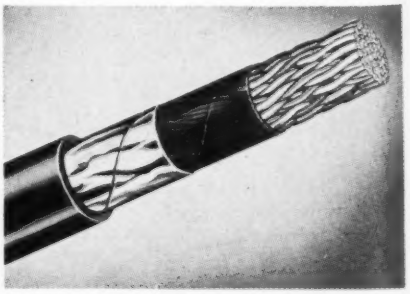
Cable has polyethylene sheath for extra-long life

In outside cable installations, you can side-step the ravages of weather, sunlight and temperature, saving yourself many dollars and hours in maintenance.

To do this, use the protection of the polyethylene sheath on Whitney Blake Telecable®. Telecable exchange area cable for aerial and duct use has polyethylene insulation **and** polyethylene sheath. No other thermoplastic material has given as good assurance of aerial cable sheath life expectancy as has polyethylene.

Specially treated to resist sunlight, the Telecable sheath has maximum chemical resistance, is not subject to environmental cracking.

Extremely light in weight, tough, yet flexible, it resists the stresses encountered during installation. You can expect top performance of Telecable for upwards of 20 or 25 years.



Telecable exchange area cable has outstanding weather resistance and transmission qualities.

Available in No. 24, No. 22 and No. 19 A.W.G. in sizes up to and including 404 pairs. For further information, consult your Stromberg-Carlson representative.

Use this insulator for rugged line construction

Hemingray Number 45 insulators with their square groove provide the ideal slot for your wire. Their reinforced construction under the groove reduces the possibility of breakage of the flange under the most severe ice loading conditions.

Double petticoat, square groove No. 45 insulator.

The extra long leakage path and double petticoat will reduce line losses and insure the strongest signal possible. These insulators are highly recommended for use on dial circuits where the strongest possible signal is necessary.

Another important advantage is the weather resistance of Hemingray insulators. Sudden or seasonal changes won't hurt them. The clear, flawless glass won't age or deteriorate.

Hemingray insulators, the "World standard since 1870," are made by Kimble Glass Company, subsidiary of Owens-Illinois.

Did you know . . . that Stromberg-Carlson warehouses and handles thousands of items in the field of construction and maintenance supplies alone? You can do *all* your business "under one roof" and find the same quality and reliability in every item.

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TELEPHONE EXCISE TAXES DISCRIMINATORY

Continued from page 19

cents or more; elimination of the exemption for common carriers in the case of Teletypewriter exchange service; providing an exemption from the wire and equipment service tax interior communications systems.

Another change will exempt installation charges in connection with services subject to the leased wire or wire and equipment service taxes. An exemption exists in present law, and is continued in the bill, for installation charges in connection with local telephone service. In addition, exemption is provided by the bill for the portion of leased wire service charges attributable to any sending or receiving devices which are station terminal equipment.

Present law provides that the tax to be collected by the telephone company shall be computed as a single tax on all items included in a bill. H.R. 7125 will permit the telephone company or other communications company to compute tax on whatever basis the bill is rendered, whether by totals or by groups of items, or on specific items associated for billing purposes. While this change will not affect the tax revenue, it does afford a greater flexibility for the persons charged with the responsibility of collecting and reporting the taxes, thereby removing a past source of annoyance.

H.R. 7125 also provides for exemption from all of the communications taxes for amounts paid by a nonprofit educational organization for communications services furnished to such an organization. Similar exemptions are provided by the bill in the case of

TELEPHONE AND TELEGRAPH TAX RECEIPTS
(in millions of dollars)

Fiscal Year Ending June 30	Toll Telephone Telegraph, Cable & Radio	Leased wires and wire and Equip. Service	Local Telephone	Total
1956	$ 222	$ 19	$ 316	$ 557
1955	212	18	290	520
1954	389	24	359	772
1953	392	26	358	776
1952	370	26	310	706
1951	334	20	290	644
1950	290	22	247	559
1949	289	22	225	536
1948	256	20	194	470
1947	240	13	165	418
1946	221	13	146	380
1945	196	12	134	342
1944	134	7	90	231
1943	86	6	67	159
1942	45	3	27	75
1941	26	1		27
1940	25	1		26
1939	23	1		24
1938	22	1		23
1937	23	1		24
1936	20	1		21
1935	18	1		19
1934	18	1		19
1933	15	0		15
1925-1932	None	None		None
1924	33	1		34
1923	29	1		30
1922	28	1		29
1921	27	1		28
1920	27	1		28
1919	18	0		18
1918	6	0		6
Total receipts	$4,034	$264	$3,218	$7,516

transportation taxes and the manufacturers and retailers taxes.

Legislative Prospects

As has been previously announced, the staffs of the sub-committee of the Joint Committee on Internal Revenue Taxation, the Treasury Department, and the Internal Revenue Service are currently engaged in studying proposals for a number of additional statutory changes of a technical or administrative nature. Chairman Forand has planned to call meetings of the subcommittee in the latter part of November to consider recommendations for statutory changes which are expected to be advanced by the staffs at that time. The many points now being considered do not include any dealing with the communications taxes, with one possible exception. This involves the question of the proper status, for taxing purposes, of charges for maintenance of lines and equipment made by non-profit cooperative telephone associations. Objections were voiced at the sub-committee's hearings in the fall of 1956 over a published revenue service ruling on this point. This will be explained and discussed under the next topical heading.

In addition to the technical and administrative points, Chairman Forand has stated that sub-committee's intention to seriously consider the broader subject of excise tax rates and policies, with particular regard to determining if certain present specific taxes should be retained, repealed, or modified. It is not believed that all of the controversial proposals in this area can be concluded at the contemplated November meetings, but is hoped there will be an opportunity to discuss them thoroughly with the members of the subcommittee and to reach some tentative conclusions.

With a few notable exceptions, such as the farmer's gasoline tax refund, the Treasury Department, for some time, has consistently expressed opposition to proposals for any tax repeal or change that would reduce tax revenue. The degree or intensity of the opposition sometimes has varied with the prospective revenue loss involved. In view of this official attitude, it is almost certain that strong opposition would be expressed to any proposal to repeal the communications taxes or even the tax on local telephone service. It is my personal belief that if either of these proposals were passed by Congress during the present administration that they would be vetoed.

Prospects for full or partial repeal are further complicated, being both helped and hindered, by the recent and current intensive agitation for repeal or relief of the various transportation taxes. The persons and organizations advocating transportation tax relief have been more vocal and far greater in number than those who advocate removal of the communications taxes.

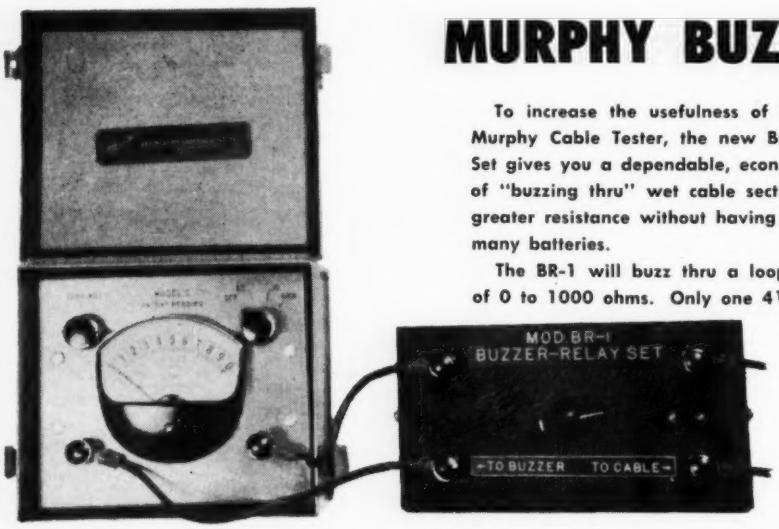
A substantial number of bills have been introduced in the 85th Congress, several by members of the House Committee on Ways and Means, calling for repeal or reduction of one or more of the transportation taxes. There obviously is considerable sentiment among members of Congress favoring such action.

It also has the apparent advantage of having greater public interest and appeal. The public interest is attributable in part to widespread publicity campaigns carried on for some time by transportation companies and associations.

Another factor producing public resentment is the fact that payments of the tax, particularly that on the transportation of persons, are made by individuals less frequently but in substantially larger amounts, as a rule, than for payments of communications taxes. A person spending $100 for a travel ticket is more pointedly aware

NOW YOU CAN *"Buzz Thru"* WET CABLE SECTIONS AND TEST FROM FIELD OR OFFICE ENDS WITH A...

MURPHY BUZZER RELAY SET (BR-1)



To increase the usefulness of the famous Murphy Cable Tester, the new Buzzer Relay Set gives you a dependable, economical way of "buzzing thru" wet cable sections over a greater resistance without having to add too many batteries.

The BR-1 will buzz thru a loop resistance of 0 to 1000 ohms. Only one 4½ volt battery is used in the set and it is enclosed in a cabinet with a special "balanced armature" relay. Dimensions of the Murphy Buzzer Relay Set are 3½x6x3 inches. It is shipped complete with a pair of water proof cords for connecting to the Murphy Cable Tester, and a heavy duty 4½ volt battery.

Write for prices and additional information.

Order your new Model VC Test Cords for use with Murphy Cable Tester. Made of high quality, extremely flexible, test wire, they're insulation tested at 20,000 volts . . . assure no "leakage" readings.

MURPHY ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE
ENGINEERING LABORATORIES, Inc.
4419 Tulsa • Houston 24, Texas

of the $10 tax he is required to pay on it, both because of the amount of the tax and because of the amount he is paying for the fare itself, than he is of the regular $1.00 or less per month that he pays as part of his telephone bill.

If legislation were passed to repeal all or part of the transportation taxes, those advocating repeal of the communications taxes could raise a point of discrimination and urge equal treatment.

On the other hand, if elimination of the communications taxes were favorably considered first, the supporters of transportation tax repeal likewise could be expected to demand similar action.

Unfortunately, an effort to link the two together might result in ultimate enactment of neither. Repeal of both undoubtedly would be regarded as too large a burden for the budget to bear, involving, as it would, a loss of over 1,250 million dollars in revenue.

Many of the arguments for and against the communications taxes hold true for the transportation taxes, and the probability of administration objection on the grounds of revenue loss, is equally great. The chances of repeal or modification of the transportation taxes are enhanced, however, by certain factors which either do not exist in the case of communications taxes, or which exist to a lesser degree.

One of these is the well-founded assertion that the existence of the transportation of property tax is a contributing factor to the steadily increasing use by businesses of their own means of transportation, in preference to the use of public carriers. It is similarly asserted that the tax on the transportation of persons often influences travelers to utilize private automobiles in preference to public transit. A comparable problem does not exist in connection with communications taxes. About the only alternative to making a telephone call or sending a telegram is the sending of a letter. The great difference in the time element between these forms of communication makes the existence of the tax a very minor factor in deciding which to use.

A point stressed by those advocating repeal of the tax on the transportation of property is the argument that the tax burden on shippers of the same types of goods or produce varies according to their distance from the market. It is stated that the unavoidable difference in freight cost is further aggravated by the correspondingly disproportionate tax.

While this point also applies to competing businesses utilizing telephone or telegraph over varying distance, the effect is not so great because of the lesser frequency of their use. Where immediate haste is not essential, the mails may be employed. Where goods have to be shipped, however, the only alternative to using a public carrier is the acquisition by the shipper of his own private means of transport.

It is believed that a serious concerted effort to repeal the communications taxes would have the best chances of success if a proposal to accomplish this were contained in a bill introduced by a member of the Committee on Ways and Means confined solely to that point. The same view applies to a proposal to repeal only the tax on local telephone service. The latter would have the better chance of being approved, of course, and would have additional arguments in its favor. Briefly summarized, these additional arguments are as follows:

The tax on local telephone service is undesirably regressive. A good part of the tax is obtained directly from lower and middle income families, who can least afford to pay it. Local telephone service is a vital and necessary

Because...the B-4 does so much more

Telephone Companies

Will save many valuable dollars in time saving and in cost of materials . . . because

- Film projection transparencies for training departments can be made as easily as a paper copy and at a very low cost. A new, simple coloring method now available.
- Sharp, letter or legal size, black and white copies can be easily made from all types of originals, regardless of color of inks, single or double sided, in less than a minute right under fluorescent lights.
- With exclusive design for copying from books, only the one page being copied is inserted on the copy glass. This assures perfect contact and sharp copies.
- Inexpensive masters can be made for use on Blue Print or White Print machines.
- The B-4 photocopier was developed after years of study and research in the photocopy field to give you an "all purpose" copy machine.

The new B-4 Lumoprint "all purpose" copying machine

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Please send complete information on the new "all purpose" B-4 Lumoprint photocopy machine (No obligation).

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COMPANY _____
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Another dial conversion includes C & D Batteries

Lexington Telephone Co. installs latest equipment

Residents of Lexington are proud of this modern, new communication center.

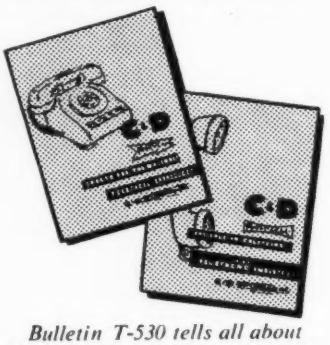
Here in the famous Blue Ridge country of Virginia, Lexington serves more than 6,000 subscribers. By its choice of C & D batteries, Lexington assured itself of:

1. Long battery life—due to extra thick, triple insulated plates.

2. Extra safety—because C & D's Saftee-Vent prevents accidental battery explosions.

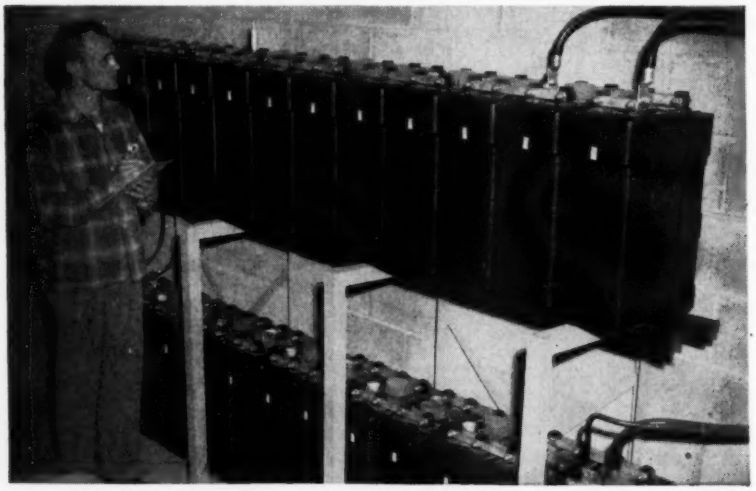
3. Easier maintenance—exclusive suspended and supported plate construction eliminates leaks due to internal stress.

Get complete details!



Bulletin T-530 tells all about PlastiCal (lead-calcium) batteries. Bulletin T-531 has the complete facts on C & D PlastiCell batteries.

Dependable power for the new XY dial system at the Lexington Telephone Co. is provided by a C&D 26 cell, Type CT-15 battery, rated at 840 Ampere Hours at the 8 Hour Rate.



C&D BATTERIES, INC.

of Conshohocken, Pa.

SINCE 1906

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

utility, not a luxury. It should not be singled out for discrimination as contrasted to other utilities, such as electricity and gas. Some of the reasons for repealing the electrical energy tax in 1951 apply with equal force to the local telephone tax.

In the case of the tax on transportation of persons, long distance transportation is taxed while local transportation is not. In the case of the telephone tax, however, both long distance telephone and local telephone are taxed. Both taxes should be placed on an equal footing by extending to telephone service the same treatment given to the transportation of persons. This also would eliminate existing discrimination against home telephones as contrasted to public telephones.

The tax on local telephone service was intended as an emergency revenue measure and should not be permitted to remain permanent. It does not have the precedent of past imposition of as long a duration as do the taxes on other communications services.

Removal of the tax would stimulate the expansion and growth of telephone service, particularly in rural areas, by encouraging consumer acceptance.

THE PLANT MAN'S NOTEBOOK

Continued from page 22

really do a job. Load coils may be mounted as required in one type of terminal designed for use on plastic cable.

A splicing sleeve is also available that has been designed to make a moisture-proof splice in plastic-insulated cable conductors. These splicing sleeves are factory-assembled units composed of three integral parts.

The innermost part is a short, stout copper sleeve ensuring high conductivity. The intermediate part is a tough plastic-insulating sleeve completely covering the aforementioned copper conductivity sleeve, and extending a short distance beyond each end of the outer part which is a copper-jacketed sleeve. This sleeve is compressed by the use of a special hand tool.

Cable and various types of insulated wire are being constantly improved. Wire and cable designed for direct burial without supplementary protection are now extensively used. Buried wire is available either polyethylene-insulated, polyethylene-jacketed or rubber-insulated neoprene-jacketed. These types are parallel conductors protected with a served armor of flat steel wire or metal tapes.

Rural distribution wire of 2, 3, 4, 6, 11 and 16 pairs is still being used in large quantities. Color coded cable was

very much in evidence. There is no doubt that in the near future all cables will be color coded.

We have always contended that any operating company would be well advised to have men from their plant department attend the United States Independent Telephone Association convention each year. They are certain to accumulate a wealth of useful information that will prove to be a good investment for any Independent telephone company.

IN THE NATION'S CAPITAL

Continued from page 25

partment would do, if the FCC decides that telephone companies are to be forever barred from engaging in mobile radio-telephone service, simply in order to leave the field wide open for companies desiring to enter this field from other industries. And, some of these companies are by no means small. In fact, several of them are among the largest business corporations in the country.

But instead of throwing the field wide open to free and untrammeled competition, on the basis of "the more the merrier" (and the devil take the hindmost), the Justice Department wants to develop a sort of specialized competition, in order to discriminate against the telephone industry.

Our Independent telephone company friend (who must be nameless) asks these pertinent questions: What would have happened if the Justice Department, 25 years ago decided that General Motors, Chrysler, and Ford were getting too big for their britches and ought to be broken up or barred from the automobile manufacturing business? Would the American public have a better or cheaper car today as a result of restricted competition by numerous small-scale operators? Or would we all be riding around in Overlands, Jeffries, and Apperson Jackrabbits, and the like, and paying plenty for them?

Perhaps our telephone friend's questions were a bit loaded. But economists realize that it is possible to carry economic pulverization of industrial units too far by government fiat. For example, in 1935 Congress passed the Public Utility Holding Company Act requiring many of the old holding company combinations in the gas and electric utility fields to be broken up into smaller operating properties. This "reform" followed a number of abuses in the old holding company setup and was popularly favored at the time, although there was some divided opinion.

But, consider the fact today that this same law may actually have to be re-

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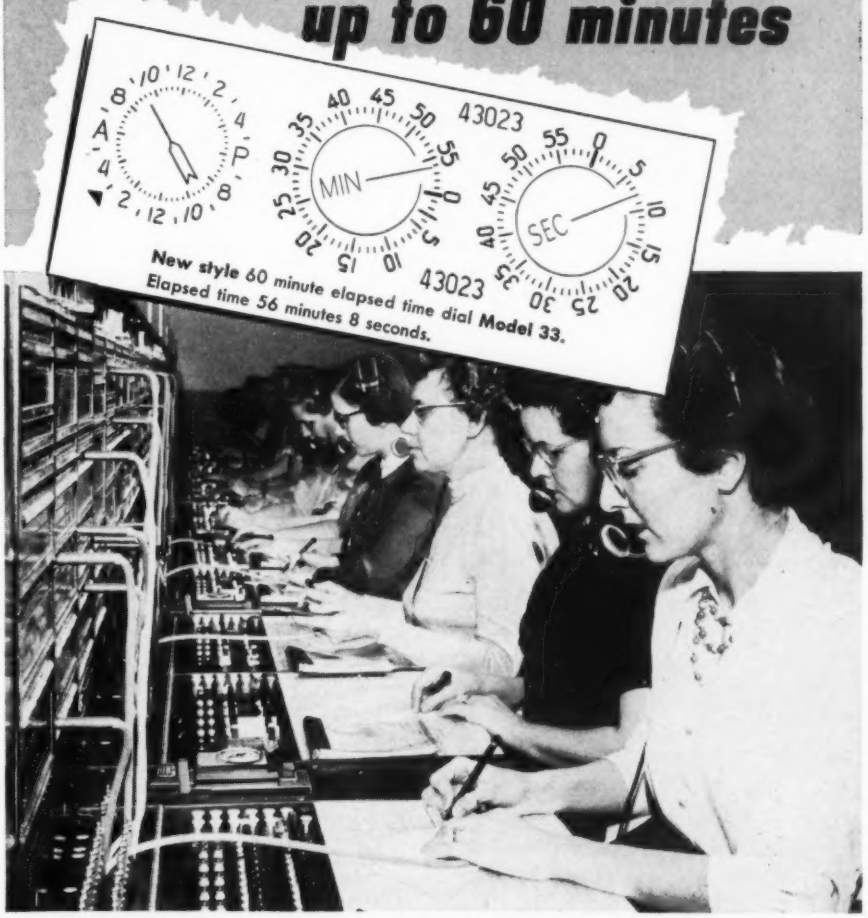

New style 60 minute elapsed time dial Model 33. Elapsed time 56 minutes 8 seconds.

Photo courtesy of the General Telephone Company of Michigan

Now, Calculagraph, the modern dependable computer, automatically figures and prints toll calls up to 60 minutes —no need to add 30 minutes on long conversations.

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vised *in the other direction,* in order to enable the electric companies to carry out their public service obligations! Back in 1935, for example, a 25,000-kilowatt generating station was a pretty big unit. Today, a 50,000-kilowatt station is commonplace. In only a few years electric companies will have to be building 100,000 and 200,000-kilowatt stations in order to get the most economical size of generating plant. The only way these companies can do this is by pooling and combining the tremendous plant investment involved. This means moving in the other direction. It means combination and consolidation, probably forbidden by our present holding company law.

Also, the question today, in some other industrial fields, may be whether manufacturers are going to be big enough, to compete in world-wide operations with the rising industrial giants of Europe, of Canada and South America, and of the more recently reviving nations such as Japan. The question is posed by H. A. Toulmin Jr., board chairman of Commonwealth Engineering Co. of Dayton, O., writing in the November issue of *Competition,* a monthly publication of that research organization. He stated:

"Whether we like it or not God has given us a country which, in less than 200 years, has become one of the world's industrial giants.

"But, we are not the only industrial giant in existence. Many others, and notably those most grieviously wounded by World II, are closing the gap; daily becoming more and more formidable competitors."

In the opinion of Toulmin, if the United States is going to maintain its position of industrial leadership in world trade, we must dispel the idea that our smaller businesses need fear our larger ones. The record is clear, he insists, that in many instances the best customer of small business is big business. He went on to say:

"The fundamental need in the United States, which is satisfied by large companies, is for fully integrated manufacturing and research organizations with a diversity of interlocking products, that have common sources of raw materials, and of semi-finished materials and components.

"We must not only have large merchandising and servicing organizations, we must also have men and women capable of visualizing and understanding operations of such magnitude. They cannot acquire that comprehension by working in small businesses alone, no matter how many such businesses we have.

"Isn't it time that we looked at the facts and put into government and onto committees of the Congress, the kind of public servants who will recognize that to insure our country's leadership in world trade we must have companies big enough and free enough to compete with the business giants overseas?"

Only three U. S. automobile manufacturers (the Big Three) are larger than the largest foreign automobile manufacturer, which includes British Motor, Fiat (Italy), both with 1956 sales of around a half billion dollars, and Renault (France) and Volkswagen (Germany), with sales between 400 and 500 million dollars in the same period. In the chemical industry, only two United States companies are larger—DuPont (1.9 billion dollars in sales) and Union Carbide (1.3 billion dollars) —than Britain's Imperial Chemical (1.2 billion dollars).

15 Canadian Companies Ask Relocation Payment Relief

Fifteen Canadian utility companies opened a plea to seek relief from payment for moving their lines and gas mains when a railroad level crossing is converted to an overpass or underpass, it was reported on Oct. 28.

The companies and the Canadian Electrical Association and Canadian Gas Association presented their case to the Board of Transport Commissioners for Canada.

They are opposed by the railways, several cities and municipalities and the Ontario highways department.

Under existing practice, the board generally orders the utility to pay the costs of shifting its facilities when a level crossing is removed, if the project is in the interests of safety, protection or convenience of the public.

Seek to Transfer Indiana Company Area to Bell

Indiana Public Service Commission authority was sought on Oct. 29 by the Amo Telephone Association and the Indiana Bell Telephone Co. to allow Bell to take over the Amo territory.

The Amo association, which serves 178 subscribers, reportedly was unwilling to spend the money needed to pay for improvements.

Essential Ingredient

"Enthusiasm is the element of success in everything. It is the light that leads and the strength that lifts men on and up in the great struggles of scientific pursuits and of professional labor. It robs endurance of difficulty, and makes a pleasure of duty."—BISHOP DOANE.

Moral Courage

"Few persons have courage enough to appear as good as they really are."—J. C. and A. W. HARE.

SMALL COMPANY DESIGN

Concluded from page 32

earnings of the company may have been increasing due to a station gain.

The shrewd investor will consider the possibilities of the company's growth in the light of both present and future conditions as they affect the general business conditions of the community, all of which will have a direct effect on the telephone company. One of the points the investor will consider is whether existing local business concerns have expanded in recent years and if any new concerns have started operations in the community.

There are many related factors which will be considered by any present business concern before it ventures additional capital for expansion, or by any outside concern contemplating coming into the community. These factors are:

(1) Is the local government progressive?
(2) Is there a good labor supply, both common and skilled?
(3) Is it a good place to live and to bring up families?
(4) Are good industrial sites available?
(5) Are the schools, churches and recreational facilities adequate?
(6) Are housing conditions ample and satisfactory?
(7) Are prevailing wages fair to all?
(8) Is there or has there been any labor unrest?
(9) Did the community lose any business establishments because of high labor costs?
(10) Are transportation facilities —both commercial and highway—adequate?
(11) Are the local and toll telephone facilities adequate?

If the answers to these questions are favorable, local industry can be expected to expand and the possibility of new industry coming in is very good. This will mean increased population, increased spending power, and, in general, a thriving community, all of which, in turn, will mean a prosperous growing telephone company.

The small telephone company has a direct interest in doing what it can to see that the above questions can be answered affirmatively in its community.

(To Be Continued)

Inner View of Character

"It is in the relaxation of security; it is in the expansion of prosperity; it is in the hour of dilatation of the heart, and of its softening into festivity and pleasure, that the real character of men is discerned."—BURKE.

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Coffing "Safety Pull" Ratchet Lever Hoists

"Safety Pull" hoists are built to withstand years of hard use. Safety features include the ratchet-and-pawl construction, which assures that the load is always under positive control, and the "safety valve" handle which bends before any load-bearing part can fail. Stops prevent the handle from slipping out of control should the operator's hand slip, and every hoist is severely tested to assure absolutely safe operation at full load.

Fourteen models ranging in capacity from ¾ ton to 15 tons are available. For full information, consult your distributor or write for Bulletin SP. *Coffing Hoist Division, Duff-Norton Company, 808 Walter Street, Danville, Illinois.*

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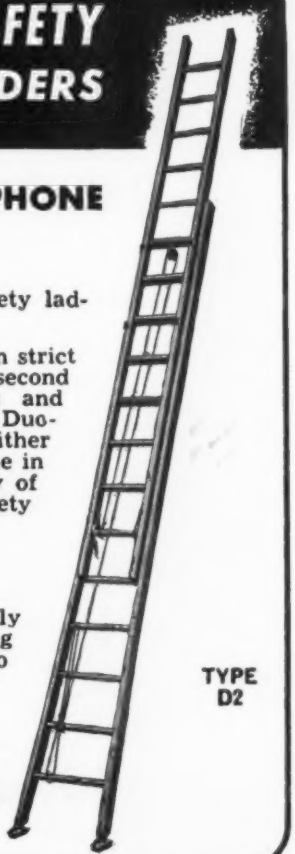

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Donald C. Power, president of the General Telephone Corp., addresses several hundred guests at dedication of new Automatic Electric plant. On the speaker's stand are, front row, left to right: M. F. Shanahan, Automatic Electric controller; J. J. Douglas, Automatic Electric vice president and treasurer; R. M. Wopat, General Telephone Laboratories president; G. K. Beare, Automatic Electric vice president in charge of production, and H. L. Nichols, General Telephone Corp. director. Middle row, left to right: L. H. Warner, executive vice president—manufacturing, General Telephone Corp.; George Perrine, chairman, Illinois Commerce Commission, and Herbert F. Lello, president of Automatic Electric Co. Last row, left to right: T. S. Gary, vice president, T. A. Boyd, executive vice president—administration; F. S. Spring, and J. B. Prizer, all directors of the General Telephone Corp.

AE Dedicates Its New Factory

"General Telephone System will invest 200 million dollars in the coming year for expansion of facilities throughout the system," Donald C. Power, president of General Telephone Corp., said on Oct. 17 in dedicating the new manufacturing and research facilities of Automatic Electric Co. at Northlake, Ill.

"Communications is the key to progress in this era of growth and expansion. Every working day, in the next year, General Telephone will spend a million dollars a day in the forward progress of our company."

"In 1958, General Telephone will have gross revenues of nearly 500 million dollars," Mr. Power said. "Our total plant investment has already passed the billion-dollar figure in 1957. Within five years we plan to more than double this figure."

Before 500 invited business and industry guests, Mr. Power formally dedicated Automatic Electric's new plant by dialing its telephone number which set off electronic impulses which took the place of the usual ribbon cutting.

Also taking part in the dedication ceremonies were Leslie H. Warner, executive vice president of General Telephone System in charge of its manufacturing units, and Herbert F. Lello, president of Automatic Electric.

Several thousand persons and almost three million pounds of equipment were moved from Automatic Electric's 17 multi-story buildings in a three-quarter-square-mile area of downtown Chicago.

The new plant, designed and built by the Austin Co., is an expansive 1,520,000-square-foot structure on a 167-acre site. It will enable the company to more than double its former production.

There are over 30 acres of parking facilities. The roof area of the plant is over 35 acres, with production and manufacturing area containing 1,142,000 square feet, and research area more than one acre. The factory and general administrative offices contain 312,000 square feet. Two cafeterias seat 2,100 persons at one time and can supply more than 10,000 hot meals three times a day.

The plant has its own bakery, ice

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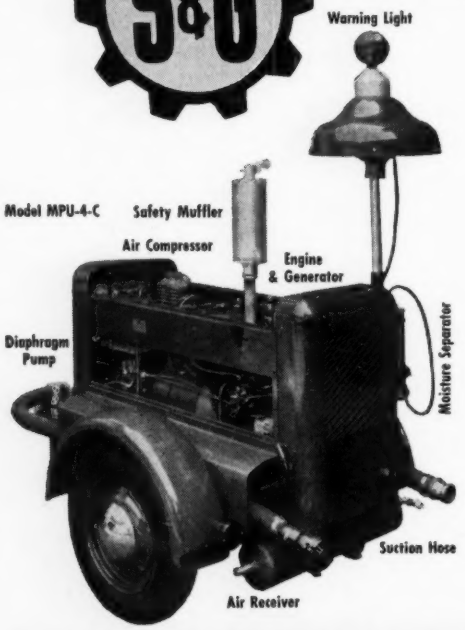

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  Furnished with or without pump and compressor
- 300-Watt floodlight illuminates working area
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Drop Wire Clamps

The telephone industry has known the advantages of the wedge clamp principle for supporting telephone drop wire ever since Reliable first manufactured such clamps about 35 years ago. Reliable's experience and know-how is bound to show the way in this field.

Reliable for years made copper clamps to support the various types of telephone drop wire: dumb-bell type, parallel non-reinforced, parallel reinforced and twisted pair.

Reliable shimmed a copper (PS) clamp for a smoother surface and for a better fit on some of the smaller drop wires.

Now Reliable Stainless Steel wedge type clamps, some types with floating stainless shims, are made for all standard drop wires. (Some different wires such as "C" Rural or Parallel Distribution are best supported by other Reliable devices).

The new, separate, smooth shim is designed for easy sliding action. It provides a metal surface, rather than just the insulation for the wedge to slide on.

Some other clamps have perforated shims. Reliable's new floating shim is not perforated because first, Reliable's shell has a more completely serrated surface (three sides) and does a superior holding job by itself; secondly, with a non-perforated shim, we can be sure our clamps will not pierce the thin insulation on some drop wires.

The P-1 series is all stainless steel. The P-2 series has an aluminum shell, but a stainless wedge. In non-corrosive areas the aluminum shell type will show a substantial saving. In coastal areas the all stainless steel clamp should be used.

Reliable's illustrated price sheet classifies by drop wires all of the new stainless steel-aluminum clamps as recommended.

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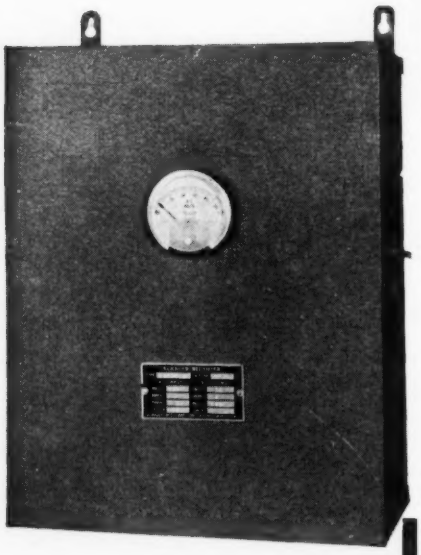

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CINCINNATI 42, OHIO

General Telephone Corp. president, Donald C. Power, formally opens new Automatic Electric building with one of company's dial telephones. Electrical impulses created by dialing number activate series of telephone relays and switches, part the traditional ribbon, and signal formal opening of vast new manufacturing and research center. Herbert F. Lello (right), president of Automatic Electric, and Leslie H. Warner (center), executive vice president—manufacturing of the General Telephone Corp., look on.

plant, and medical center.

Presently, Automatic Electric Co. employs approximately 8,000 persons. This number is expected to reach 10,000 in the future.

The move from the downtown area was staggered over a 20-week period. Approximately 3,000 van loads of furnishings and equipment were moved.

Microwave to Be Used for Message Service by LT&T

The Lincoln (Neb.) Telephone & Telegraph Co. has started construction of its first microwave radio relay system for message service. It will connect the Lincoln, Wahoo and David City exchanges and will replace present wire connections for long distance communication between these points.

The system will be equipped initially for 44 circuits and will have a capacity of 120 circuits. It will cover 57 airline miles.

A 260-foot guyed antenna tower will be placed near Brainard with 120 and 75-foot guyed towers located adjacent to new telephone buildings at David City and Wahoo. The Lincoln antenna will be installed on a 210-foot tower now located on the telephone building there.

The company has two microwave systems in operation at present for reception of network television for local TV stations at Lincoln and Hastings.

The new system will be placed in operation about the middle of next year when Wahoo and David City will be converted to automatic operation. Direct Distance Dialing (DDD) to some 48 exchanges in southeast Nebraska will also be inaugurated at Wahoo and David City. The Beatrice exchange now has such service.

Installing the 10,000th telephone in the Mattoon, Ill. exchange of Illinois Consolidated Telephone Co., is Gerald Hyland, while R. D. Watkins, district commercial manager, congratulates the subscribers, Mr. and Mrs. Richard Podeschi and son. Mr. Watkins noted the mark was reached during celebration of Independent Telephone Week. Mattoon's dial center, cut over in August 1950, with less than 7,000 connected telephones, has shown a 45 per cent gain in less than seven years.

These securities have been privately placed with institutional investors by the Undersigned.

$3,000,000

Northern Ohio Telephone Company

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October 29, 1957

Ruling Principles of Utility Regulation

RATE OF RETURN

by Ellsworth Nichols

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One of the most important subjects, if not the ***most important subject***, constantly confronting utility managements, regulatory commissions and others concerned, is the ***amount of return*** to be ***allowed public utility companies*** and ***how best*** to ***determine that return.*** After almost four years of research, study, and analysis, Ellsworth Nichols, Editor of PUBLIC UTILITIES REPORTS and author of other publications on regulation, has completed his new volume ***"RATE OF RETURN."***

Published by Public Utilities Reports, Inc. *and kept up-to-date by periodic pocket supplements.*

Throughout the work, emphasis is placed on the ***ruling principles of courts and commissions*** concerning the ***various factors to be considered, the weight to be accorded such factors,*** and ***illustrations*** of the ***application*** of the ***principles discussed.***

The volume contains 25 chapters, each dealing with an important phase of the subject.

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One MICROTEL transmitter and receiver combination will handle up to 240 channels (plus several channels for supervision, remote control, or telemetering). As many as eight transmitters and receivers—a total of 1920 voice channels plus 60 or more supervisory channels—can be operated over one common path. Here's real *capacity* when you need it! And you can start as small as you wish, for MICROTEL is readily expandable.

For circuits into new territory—for additional channels beyond the capacity of existing physical and carrier circuits—for "weatherproof" circuits not affected by trouble in your physical plant—look into MICROTEL. And remember that you can obtain MICROTEL in a complete package—engineered, furnished and installed—on one order, from Automatic Electric.

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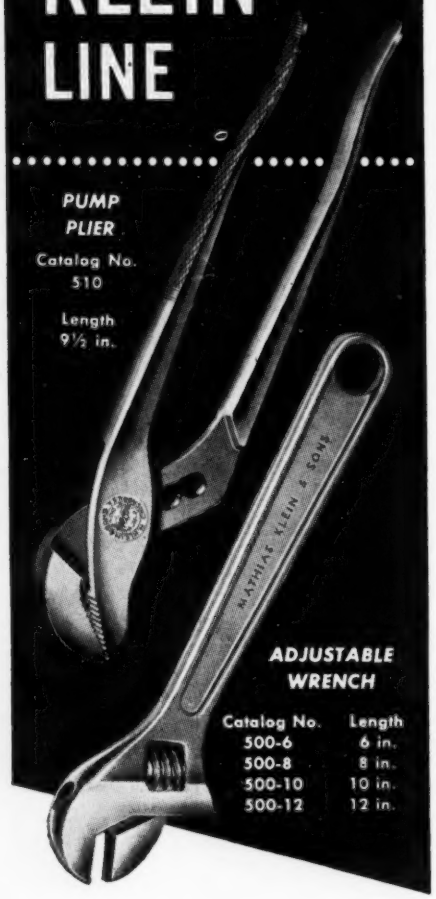

These new high-quality tools have been added to the Klein line.

A Pump Plier that gives easy one-hand operation and a firm grip in any of four positions.

And the new Klein Adjustable Wrenches of drop-forged alloy steel, light in weight, chrome plated for lasting protection and service.

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General of California Man Wins Editorial Award

A first-place award for the best human-interest story in a Pacific Coast industrial magazine was presented to Ben Harvey, employe communications coordinator for General Telephone Co. of California, with headquarters in Santa Monica, by the 1957 Pacific Coast Industrial Editors Association in Seattle, Wash., on Oct. 11.

BEN HARVEY

Mr. Harvey received this award at the climax of the three-day meeting of the Pacific Coast Industrial Editors' Conference, Oct. 8, 9, and 10, for his vivid depiction of the Malibu Fire and its effect on General Telephone employes who lived in the stricken area. The story, entitled: "Twas the Night After Christmas," appeared in the January 1957 issue of the *General News*, a monthly publication for General's California employes.

The winning story was written by Harvey while editor of the *General News*. He has since received a promotion to the position of employe communications coordinator, which entails the supervision and direction of all employe communications.

A native Californian, Mr. Harvey attended Woodrow Wilson High School in Long Beach, later matriculating at University of Southern California and San Diego State College, where he received a B.A. degree with honors and distinction in journalism.

A veteran of World War II, Mr. Harvey enlisted in the Marine Corps in Los Angeles in 1943 and served over two years in the South Pacific seeing action in Okinawa and China. He received his honorable discharge in 1947.

Prior to joining General's staff as editor of the *General News*, Mr. Harvey worked for two California newspapers, including the *La Mesa Scout* and the *El Cajon Valley News*.

A story on the Malibu-Zuma fire by Mr. Harvey was carried by TELEPHONY, Feb. 23, p. 48.

Young Engineers to Broaden Horizons in WSE Meetings

A group of 100 young Chicago engineers on Oct. 17 began a series of six meetings—the eighth annual Young Engineers Forum of the Western Society of Engineers—which many see as a step forward in the battle for worldwide technical supremacy. William B. Salzman, Illinois Bell Telephone Co. training engineer, is chairman of the forum.

W. B. SALZMAN

These "youngsters" in the engineering profession—ranging up to 35 years of age and with five to 10 years' experience—are involved in a new concept of the engineering profession.

"Objective is to provide young engineers with a broader horizon which will bring to their specialized work a better understanding of engineering as a whole and its place in business generally," Mr. Salzman says. "The sessions will enable them to confer with both young and mature engineers. From leaders in industry they will get a clear picture of their over-all role in the world of today—and tomorrow."

The Russian development of the earth satellite and other Soviet advances put new emphasis on the Young Engineers Forum this year, Mr. Salzman said. He pointed out that stepped-up training of engineers as managers of technical operations — without forgetting human relations—is one of the most potent weapons the U. S. has in the rush to keep pace with Russia's giant strides in the technical and scientific fields.

Engineers participating were selected

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The meetings were not tied to reams of statistics and slide-rules.

"We in the profession recognize the importance of engineer's contribution to society—and the community—and are determined to improve the American 'way of life' by continued self-development and study," Salzman says. "This includes both technical and non-technical fields of study."

Speakers for the six sessions (weekly, Oct. 17 through Nov. 21):

Finance—Beryl W. Sprinkel, economist, Harris Trust & Savings Co.

Heavy manufacturing—Brooks McCormick, executive vice president, International Harvester Co.

Petroleum—David Graham, financial vice president, Standard Oil Co. (Indiana).

Light manufacturing—John F. Farrar, president, Flexonics Corp.

Steel—John H. Morava, president, U. S. Steel Supply Division, U. S. Steel Corp.

Engineering education—John T. Rettaliata, president, Illinois Institute of Technology.

Speakers will touch on the professional and economic aspects of engineering opportunities, development of supervisory and managerial skills and participation in community affairs.

The sessions, however, are not of the "sit and listen" variety.

The "youngsters" will put the top professionals through tough question-and-answer sessions. When the speaker isn't being queried, the young engineers will put each other through their "paces."

The meetings will be held in the headquarters of the Western Society of Engineers, 84 East Randolph St., Chicago, starting at 5:30 p.m.

National Defense Executive Reserve Plans Conference

The National Defense Executive Reserve will hold a two-day conference in Washington on Nov. 13 and 14, it was announced jointly on Oct. 13 by the Office of Defense Mobilization and the Department of Commerce.

The conference is being sponsored by Gordon Gray, Director of Defense Mobilization, and Sinclair Weeks, Secretary of Commerce.

Opening day of the conference will be held at the Sheraton Park Hotel where the reservists will be briefed by leaders of the Executive Branch and Congress. The White House has announced that President Eisenhower plans to be present on the evening of Nov. 13.

Secretary of State John Foster Dulles, Director of Defense Mobilization Gordon Gray, Secretary of Commerce Sinclair Weeks, Senator Homer Capehart and others will discuss current national and international problems. Also participating will be General Maxwell D. Taylor, Chief of Staff, U. S. Army, and Federal Civil Defense Administrator Leo A. Hoegh. During the second day of the conference the 12 agencies participating will hold training sessions.

Some 800 members of the executive reserve, selected and trained for government executive positions in any future defense emergency, are being invited to the national conference for briefing and training in current defense mobilization policies and problems. The reservists are outstanding executives and administrators who have signified their immediate availability to man defense agencies in any future emergency, the announcement states.

Drawn from all parts of the United States, the reservists are recruited from industry, labor, agriculture, the professions and public and private institutions, and undergo periodic training in defense mobilization planning and procedures. The selection and training of reservists is carried out by

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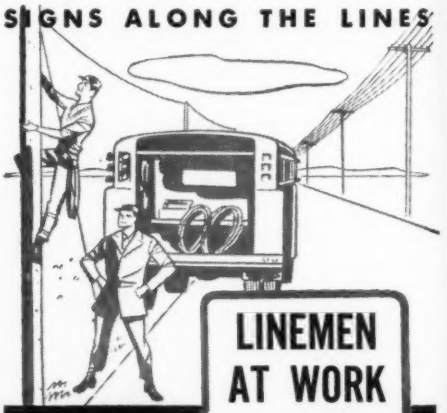

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federal agencies in accordance with regulations and standards set up by the Office of Defense Mobilization.

The National Defense Executive Reserve was authorized by Congress at the request of the President in 1955 as part of the nation's mobilization readiness program for manpower. It is designed to make immediately available to the government in an emergency, persons with broad experience in such functional areas as production, manpower and transportation, to serve with defense agencies.

ODM and Department of Commerce officials said that in a period characterized by international tensions and weapons of great destructive power, the nation needs a ready civilian reserve just as it needs a trained ready reserve for the Armed Forces.

Since its authorization two years ago, 12 departments and agencies of the federal government have established executive reserve units. These are: The Departments of State, Defense, Commerce, Justice, Labor and Interior, United States Information Agency, Interstate Commerce Commission, Small Business Administration, Central Intelligence Agency, Housing and Home Finance Administration, and the Office of Defense Mobilization. Other departments and agencies are in the process of organizing units.

The Business & Defense Services Administration of the Department of Commerce is making administrative arrangements for the meeting.

Lincoln T&T Announces Managerial Appointments

Managerial appointments effective Nov. 1 have been announced by The Lincoln Telephone & Telegraph Co.

Thomas E. Longdon retires as area

T. E. LONGDON

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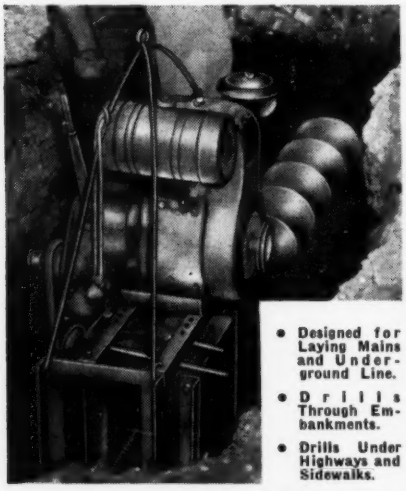

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manager at Fairbury and will be succeeded by Michael J. Danaher, formerly exchange manager at Wymore. Moving to Wymore as exchange manager is Richard H. Fischer, formerly exchange manager at Milford.

Mr. Longdon has been with LT&T for 37 years, serving as manager at

M. J. DANAHER

Gresham, Surprise, Stromsburg and Tecumseh before moving to Fairbury in 1934. Before 1920 he worked for telephone companies at Flatrock, Ill.; Washington, Kan., and Gerard, Kan. He is a past president of the Frank H. Woods Chapter of the Independent Telephone Pioneer Association.

R. H. FISCHER

Mr. Danaher joined LT&T in 1948 as a groundman at Seward. He became exchange manager at Milford in 1952 and moved to Wymore later that year as exchange manager. Before 1948 he worked for the Continental Telephone Co. at Columbus as a lineman.

Mr. Fischer was first employed with the company as a warehouseman at Lincoln. He became a combinationman in 1948 and was named manager at Milford in 1954.

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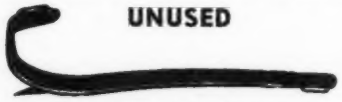

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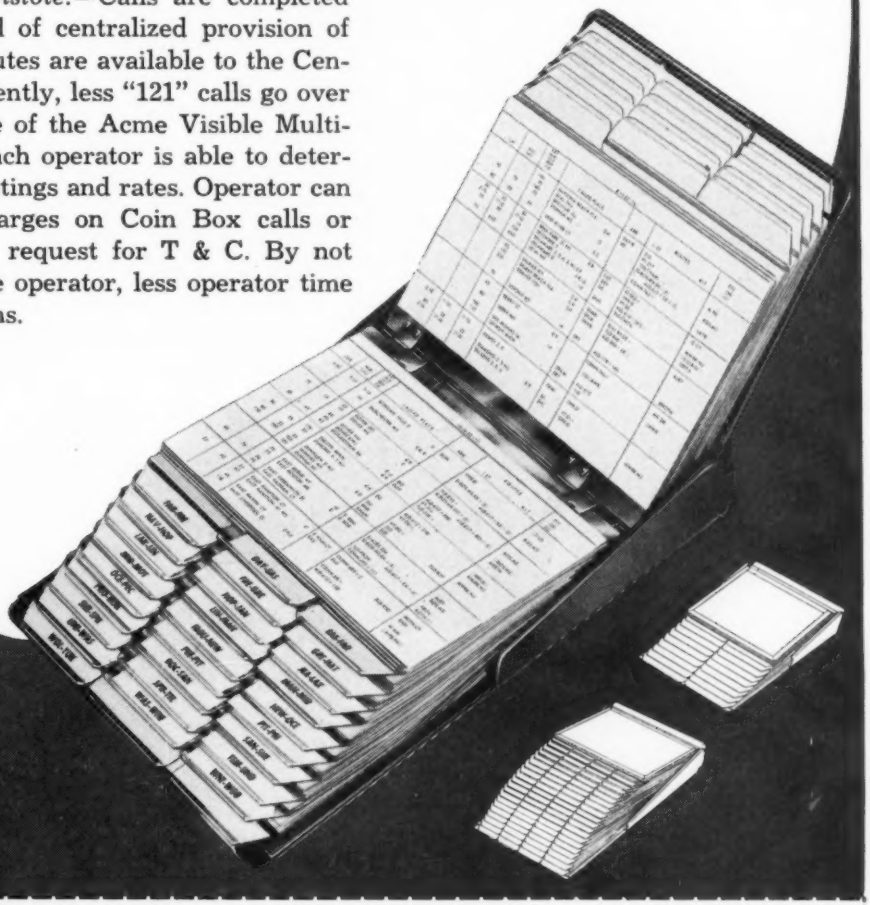

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